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ORIGINAL ARTICLES.

THE ORTHOPEDIC TREATMENT OF SPASTIC PARALYSIS IN CHILDREN.¹

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A CLASS of cases which sooner or later require orthopedic measures for the relief of deformity, have been variously called spastic paralysis, Erb's paralysis, paralysis with rigid muscles (Adams), pseudo-tetanoid paraplegia (Seguin), etc., etc. It will not be within the province of this short paper to enter into the pathology of this affection, which belongs to and has been studied by the neurologist. Its object will rather be to evoke a discussion as to its treatment from the standpoint of the orthopedic surgeon, as in some of the mooted questions, there is still a wide difference of opinion. Clinically, these cases present themselves to the orthopedic surgeon at various epochs of the disease, and at these different times, the manifestations are such that the different conditions should be the basis for their appropriate treatment.

For clinical purposes these cases may be divided into three classes: (1) Those where the mentality is practically nil (idiots); (2) those where the mentality is diminished; (3) those where the mentality is normal or only slightly interfered with.

The characteristic deformity of spastic paralysis is due to a contraction non-permanent in character, and where the element of irritability is always present in a greater or less degree. This irritability is manifested by the increased reflexes, and by the incoordination of muscular movement, resulting in the different deformities. All who are familiar with these cases, and have had the opportunity to observe them for an extended period of time, have seen at various stages of the disease a variation both in the character and location of the deformities produced. Hence it is that treatment should naturally differ, according to the time at which a case presents itself to the orthopedic surgeon.

The treatment may be classified as (1) general, (2) mechanical, and (3) operative.

The general treatment, in addition to the limited medicinal agents at our convenience, is comprised in

the employment of mental training, electricity, and massage. The former, while necessary and important during the whole course of the disease, is one which belongs to the province of neurology, and need not be elaborated in detail here. Its best results are shown in cases where it has been continued systematically in schools for feeble-minded children, and under competent direction. Theoretically, the application of any remedy which would increase peripheral irritation, would certainly be contraindicated in an affection whose chief characteristic is one of exalted reflexes. Thus faradism, which has been extolled, or any interrupted current, should not be used. Personally, I have never seen any advantage from the use of electricity in any form, but if used it certainly should be for its "sedative" qualities, in the form of a constant or stable current.

Massage, in the ordinary sense of the term, except as a means of keeping the muscles in good general condition, has, as a remedial measure for the relief of deformity, no especial value in this class of cases.

Purely orthopedic measures are represented by a consideration of the mechanical and operative methods, and a discussion of these will be the object of this paper. The mechanical devices are embraced under those whose object is either improvement in locomotion or cure of the deformities.

It is the common experience of the orthopedic surgeon to have children afflicted with spastic paralysis brought to him with the request that some apparatus be applied to improve locomotion. It is in this connection that the clinical division which I have separated into three types becomes important as a basis, both for selection of apparatus and for operative measures. Thus it would be manifestly absurd, where incoordination and spasm were extreme, as occurs in the idiotic class, to burden them further with apparatus which they neither have the will-power nor proper muscular strength to support. The proper use of apparatus in these cases is only applicable to those where mentality is slightly or not appreciably affected. Here we can by apparatus prevent the increase of deformity by judicious use of suprainingcumbent weight and the approximation of the deformed parts to their normal position. I have deemed it unnecessary to enter here into an extensive description of the symptoms of spastic paralysis. All of you are familiar with the "scissors gait," the characteristic "Equino varus," and the various

¹ Read before the Orthopedic Section of the New York Academy of Medicine, February 19, 1897.

spastic contractions which produce the different deformities of both upper and lower extremities, interfering with proper use of both. Contractions of the upper muscular part of the body are rare, as compared with those of the lower. The greatest number of cases are comprised in the two classes, adducted thighs and elevated, inverted feet. Where both of these conditions are present it will be seen that no apparatus can in itself be efficacious for purposes of locomotion. Another object, however, is always to be borne in mind in the use of apparatus, and that is the maintenance of the normal position of parts. It is easy enough to obtain good position in these cases, but it requires unusual care and supervision to maintain it. No apparatus should be applied, in my opinion, where this skilled supervision is lacking, and also a definite knowledge on the part of those having the home care of the case as to the object of the apparatus. In the comparatively rare cases of this affection, where only single muscular groups are involved, as in unilateral, or even bilateral, clubfoot, more can be accomplished by apparatus, both as regards locomotion and cure. Here it is, however, that the question of the time when these cases are seen becomes important. As before stated, the deformities produced by spastic paralysis differ in character at various epochs of the malady. Thus it has been observed that many of these cases showing almost complete helplessness in infancy have attained to a condition later in life where comparative activity was present. In most all of the cases, except the completely idiotic, there is a progressive tendency toward improvement in walking. Clinical observation shows that as the cases approach adolescence the "irritability" lessens and the contractions assume a more fixed type. The best use of apparatus is obtained as the spasticity approximates the minimum. It is not the object of this paper to extol any special apparatus, but it is hoped sufficient has been stated as to the indications for the employment of such mechanical procedures as will enable the surgeon to ameliorate the distressing deformities of the disease.

Before dismissing the subject of the mechanical treatment, it would be well to speak of the question of stretching of muscles affected by spastic paralysis. This may be done either by manual exercise, applied to the different deformities, or by the use of, in the clubfeet, mechanical appliances. Here, again, it is possible by these means to maintain the parts in good position and prevent further progress of distortion, and as an adjuvant, there can be no question as to the utility of this procedure.

A consideration of the operative treatment will include tenotomy, myotomy, and also the questions

of circumcision and cerebral surgery. Very little will be said of the latter procedure, as besides Bradford's and Morton's cases, we have as yet no data sufficient to uphold it in the surgical treatment of these cases.

Tenotomy and myotomy are recognized measures for the relief or cure of the deformities of spastic paralysis. The former, however, is the one most frequently used, and will occupy our attention.

There can now, in the light of clinical experience, be no question as to the utility of tenotomy, open or subcutaneous, in properly selected cases. I use the term "properly selected cases" advisedly, as I believe that many of the indiscriminate tenotomies done for the deformities of spastic paralysis are ill advised and unbeneficial. The antagonism of many neurologists on theoretical grounds is probably due to the results seen, in many of these cases, where the operation was performed irrespective of the conditions present or the after-treatment. Again, I believe that the irritability, general and local, should, in connection with the time, be a guide for the performance of the operation. Thus, the greater the irritability, or in other words, the greater the spasm, the less favorable is the result apt to be. If we are in position to so place the parts deformed, where we can control the deformity, it would seem rational to delay the performance of tenotomy until such time as the spasm approximates the minimum, and where the deformity becomes more fixed in character. In a large service, some years ago at Randall's Island Hospital, where there was a separate building for idiots, spastic cases were common. I operated in many of these cases, and although the after-treatment was in most of them carefully carried out, my success was not in accord with what I had been led to believe by the writings of Rupprecht and others. He it is who is responsible for the statement, that many of these cases after tenotomy, not only showed cure of the deformities, but also great improvement in the mental condition. I have not been able to satisfy myself as to the truth of the latter proposition. It is quite natural to believe, however, that many of these cases, by their being brought into contact with new things, by being better able to use their muscular sense, by seeing, touching, and walking, should apparently evince a better mental status.

The danger of relapse after tenotomy is, I think, much greater in this class of cases than in either the congenital or acquired clubfoot. We are here dealing with a "constant current of spasm" so to speak, which by operation is only checked for the time being, unless the after-care is very thorough and complete. If this is not carried out many of these cases will be in a worse condition than before opera-

tive measures were resorted to. Thus, while I am in favor of tenotomy as a means toward the rectification of the deformities of spastic paralysis, I would again call attention to the question of time and amount of irritability as guides to the proper selection of cases for the performance of either tenotomy or myotomy.

I shall not speak of circumcision except as a means, in a certain number of cases of this affection, of removing reflex disturbance of the nervous system. Dr. Sayre, whose name is connected with this operation in cases of spastic paraplegia, uses it in this sense, and not as a cure for deformities the result of either organic, brain, or spinal lesions. Many of these cases are undoubtedly benefited in a general way by the removal of any reflex disturbance which tends to keep up the general condition of spasm.

In conclusion, I hope these remarks, which are based on purely clinical grounds, will be of service in establishing some landmarks in the question of the relief of one of the most distressing class of cases with which the orthopedic surgeon has to deal.

THE PHYSIOLOGICAL ACTION AND THERAPEUTIC USES OF YEAST NUCLEINIC ACID, WITH SPECIAL REFERENCE TO ITS EMPLOYMENT IN TUBERCULOSIS.

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(Concluded from page 366.)

CASE LIII.—Mr. G., aged thirty-two, of Detroit, was examined July 5, 1895. There was no family history of tuberculosis. Both parents were then living, and his two brothers were healthy, active business men. The patient has been for some years given to the abuse of alcoholic drinks. Within the preceding twelve months his weight has fallen from 170 to 120 pounds. Examination showed extensive involvement of the lungs and larynx. Both apices were retracted. There was a large cavity on the left side under the third interspace. Crepitant râles were heard over the upper half of the right lung. Moist râles were heard posteriorly both above and between the scapulae. The expectoration was abundant, purulent, and full of bacilli. Considering the condition of his lungs, this is in some respects one of the most satisfactory cases which has come under my treatment. During the first two months I could not see the slightest evidence of improvement. Indeed, the disease steadily progressed. The afternoon temperature frequently went as high as 103° F., and the weight slowly diminished, but early in September, 1895, the appetite improved, the cough became much less continuous, the sputum lost its purulent character, and in several samples no bacilli could be found. This would be true sometimes

when all the sputum raised in twenty-four hours was collected and examined. At other times a few bacilli could be found. This condition of the sputum continued as long as the patient was with me, which was until December 21, 1895. There was also marked improvement in the physical signs. The cavity remained, and there was bronchial breathing over both upper lobes, but there were no râles. Dr. McClintock has examined this patient (October, 1896), and reports that there has been further improvement, and that he is now using the nuclein again.

CASE LIV.—Miss B., aged twenty-seven, of Owosso, Mich., a stenographer, was examined July 9, 1895. Her father died at forty-five from some stomach trouble. Her mother is living, and apparently well, but earlier in life she had pulmonary hemorrhages. A sister of her mother and a brother and sister of her father died of consumption. Miss B. has been "out of health" for three or four years, but did not begin to cough until four months ago, when she had an attack of influenza. Since then she has been coughing and raising abundantly. She had heavy night sweats, and the menses have been suppressed for some months. There was at least one cavity in the left lung, and there was bronchial breathing over the upper lobe on the right side. The patient remained under treatment with me until about October 1, 1895, when she went to Talapoosa, Ga., where the nuclein injections were continued by a very intelligent physician. The result in this case conforms to the general rule for this class. There was temporary improvement, gain in weight of about ten pounds, restoration of the menses, diminished cough and expectoration, and then under the continued use of the nuclein, retrogression and gradual failure. She died in August, 1896.

CASE LV.—A. B., aged twenty-one, farmer, Hersey, Mich. One brother and one sister had died of consumption within the past five years. Patient was with both brother and sister during their illness. He had lost about twenty pounds during the last year. Right lung: Bronchial breathing throughout upper lobe; crepitant râles in the superior axillary region. Posteriorly a large cavity was detected above the scapula. There was bronchial respiration between the scapulae. Left lung: Bronchial respiration over upper lobe; crepitant râles through the lower part of the lung and throughout the axillary area. Bubbling râles were heard posteriorly.

There was an ischiorectal abscess, which had been opened by his physician in March, 1895, and which at the time of my examination was discharging freely. This abscess was opened more freely and dressed with nuclein and iodoform, and healed completely within one month. This patient remained under treatment until October 1, 1895. His lungs showed some improvement in physical signs, and the weight increased four pounds. The temperature was not materially altered, that for 4 P.M. averaging 100° F. during the first and last weeks of treatment. When he went home, October 1, 1895, I gave him a prescription for capsules, containing one grain each of iodo-

form and sulfate of quinin and one-sixtieth of a grain of strychnin sulfate. I have been unable to obtain further information concerning this patient.

CASE LVI.—Miss W., aged twenty-five, of Ann Arbor, was examined July 10, 1895. Her mother died five years ago of consumption. Miss W. was with her mother during the illness of the latter. Her mother had two sisters, both of whom died of consumption. Miss W. had not felt well since the death of her mother. She had lost ten pounds since June 1, 1895. She had been having night sweats for two months, and felt "flushed and hot" every afternoon. The cough was slight, and the sputum consisted of glairy mucus, containing a few tubercle bacilli. The only abnormality which could be found in the lungs consisted of crepitant râles in the right apex. The afternoon temperature ran from 99.5° to 100° F. The râles disappeared, and no germs could be found after three weeks of treatment. The injections were continued until October 1, 1895. The patient has shown no signs of disease since, and raises nothing.

CASE LVII.—Mr. R., aged thirty-two, of Toledo, O., was examined July 10, 1895. He had no family history of tuberculosis, but there was sufficient evidence of direct exposure to the infection. A young man with tuberculosis had worked for many months in his office. This clerk had coughed and expectorated freely, and there had been no attempt to disinfect the sputum, and it was R.'s recollection that the clerk had expectorated on the floor. This was some five years before he came to me. He had known himself to be tuberculous for about two years, and had spent a part of one winter at Asheville, N. C. There were numerous small cavities in both upper lobes. The afternoon temperature went as high as 101° F. The treatment was continued until the middle of September, 1895, when he went to Utah for permanent residence. I have not heard from him since. There was a slight gain in weight during treatment, but no essential improvement in physical signs.

CASE LVIII.—Charles M., aged seventeen, of Northfield, Mich., was examined August 13, 1895. There was no history of tuberculosis in the family, and no evidence of direct contagion. In March, 1895, he began to cough, and from that time to the date of examination he had lost fifteen pounds in weight. The amount of sputum raised daily averaged about two ounces. There were a few bacilli. Moist râles could be detected in the right subclavicular area. No other abnormality could be found. The average temperature for three days before beginning the treatment was at 8 A.M. 99°; at 12 M., 99.4°; at 4 P.M., 100°; and at 8 P.M., 98.6°. The treatment was continued until the middle of September, 1895. By this time the temperature had become constantly normal. The cough and expectoration had ceased, and he had gained ten pounds. He remains well, and has no cough.

CASE LIX.—Miss L., aged twenty-eight, of Detroit, was first examined August 13, 1895. One sister had died of consumption at the age of twenty, eight years ago. Miss L. had been with this sister

during her illness. She had been coughing for three years, and was in the last stages of the disease. There were numerous small cavities in both upper lobes. The afternoon temperature went as high as 102.5° F. The treatment was continued for eight weeks, and without effect on the progress of the disease. She died about three months later.

CASE LX.—Mr. C., aged thirty-seven, of Amsterdam, N. Y., a druggist. There was no family history of tuberculosis and no evidence of direct contagion. Patient had influenza six years ago, and has been coughing and expectorating ever since. There were cavities in both upper lobes. Treatment was given for two months without benefit. He died the last of December, 1895. During the last week of his life there was involvement of the meninges.

CASE LXI.—Mrs. C. of Amsterdam, N. Y., wife of the patient whose history has just been given. There was no family history of tuberculosis, but she undoubtedly acquired the disease from her husband. It may be remarked here that Mr. C. was exceedingly careless about expectorating about him wherever he happened to be. This was so noticeable and he was so persistent in the neglect of my admonitions so frequently given, that I once forbade his coming to my office. This caused him to heed my advice while in my office, but he continued to disregard all precautions elsewhere. Mrs. C. also had numerous small cavities. The treatment was given for about two months, but without any evidence of improvement. She died a few weeks after her husband.

CASE LXII.—E. B., aged twenty-eight, of Saginaw, Mich., was examined August 14, 1895. The family history has already been given. One sister died, while tuberculous, in child-birth, and another sister was under treatment (Mrs. E., Case LXIV). This man had always considered himself especially healthy and robust. About six weeks before coming to me, he began coughing and spitting up blood. He had had three slight hemorrhages in that time, and had lost twelve pounds in weight. The only abnormality that could be detected consisted of a prolonged expiratory movement over the left apex and subclavicular area. The sputum contained numerous bacilli. He remained with me only three weeks and went home with the intention of having the treatment continued. October 23, 1895, he wrote me that he had gained eight pounds. He sent me some of the sputum at that time, and there were bacilli in it. November, 1896, he reports to me that he is quite well, weighing more than he ever did before, but I have not seen him.

CASE LXIII.—Mrs. H., aged thirty-eight, of Toledo, Ohio, came for treatment August 18, 1895. She had been coughing and expectorating for two years, and had spent one winter at Colorado Springs. The expectoration was free, but contained very few bacilli. There was only bronchial breathing over the upper half of the left lung and over the right apex. She remained under treatment for two months, during the latter half of which she coughed and expectorated much less and no bacilli could be found, although frequent and careful examinations were made. I last

examined the sputum in December, 1895, and at that time could find no bacilli.

CASE LXIV.—Miss P., aged eighteen, of Grass Lake, Mich., had been seen by me in consultation early in July, 1895. She was in the last stages of the disease, very much emaciated, and with extensive cavities. There was no family history of the disease, except that a cousin had it, and this cousin had visited at her father's house. The treatment in this case was without effect, and the patient died in November, 1895.

CASE LXV.—Miss M. S., aged twenty-one, of Ann Arbor, in the last stage of the disease had the treatment for three weeks without effect.

CASE LXVI.—Miss E. S., aged twenty-nine, of Ann Arbor, came for examination August 29, 1895. There was no family history and no known direct contagion. The apex and subclavicular area of the left side showed crepitant râles. The sputum was small in amount but contained numerous bacilli. Miss S. is a farmer's daughter and lives about five miles from my office. She drove this distance every day, rain or shine, cold or hot, from the time of beginning the treatment until March 1, 1896. I attribute much of the good results secured in this case to that drive. The germs disappeared in December, 1895, and she has not coughed any since early in January, 1896. Physical examination fails to show any abnormality. The temperature never went above 100° F. and has been normal since December, 1895. I believe in the curative value of out-door life. This adjunct to treatment is especially applicable to those cases in which there is but little elevation of temperature.

CASE LXVII.—Mr. W., aged twenty-eight, a paperhanger, of Ann Arbor, came for examination the last of August, 1895. There was no history of the disease in his family, and no evidence of direct contagion. He came on account of a hemorrhage, having supposed himself well except that he had lost about fifteen pounds in weight during the preceding year. The bloody sputum contained numerous tubercle bacilli. The left lung showed in its upper portion moist râles. The afternoon temperature was 100° F. After four weeks of treatment the râles disappeared and there has been no cough since. He took the injections daily for nearly six months. He now weighs more than he ever did before, and has not lost more than one month from his work during the whole time.

CASE LXVIII.—Mrs. W., aged twenty-eight, of Grand Rapids, Mich., was examined early in September, 1895. There was no history of the disease in her family, and none of direct contagion. There was bronchial breathing over both upper lobes. Treatment was given for six weeks, during which time the patient gained a few pounds in weight and the night sweats, which had been profuse, ceased. She then went to Colorado, and I have known nothing of her since.

CASE LXIX.—Miss R., of Goshen, Ind., was examined late in September, 1895. She had numerous small cavities, profuse night sweats, and high after-

noon temperature. The treatment did not retard the progress of the disease.

CASE LXX.—Mr. J., aged twenty-seven, an instructor in the University, came under treatment early in October, 1895. There was no history of the disease in his family. He had worked in the same room with a consumptive two years before. There was bronchial breathing over the upper half of both lungs. The afternoon temperature averaged 100° F. The treatment was continued until the middle of February, 1896, at which time he went west for permanent residence. There was some improvement during the treatment, as shown by gain in weight and decrease in temperature. However, the bacilli remained in the sputum and the physical signs were not materially altered. November, 1896. He has steadily declined in health since going to Colorado.

CASE LXXI.—Miss S., aged eighteen, of Bay City, Mich., October 13, 1895. There are certain points in this case which justify some detail. Miss S. had studied very continuously in the Bay City High School, the very moderate means of her parents having rendered it necessary that her studies should be pursued under certain disadvantages. During the last year of her high school course she lost flesh and suffered from a sensation of general weariness from which she constantly strove to relieve herself by working all the harder, and the stimulation of work actually gave her temporary relief. In October, 1895, she entered the University and soon thereafter consulted me concerning the feeling of lassitude. Nothing had called her attention to her lungs. She had observed that she felt a shortness of breath, even when walking at an ordinary gait, and much more plainly on ascending stairs, but she had supposed that this was due to a weak heart.

There was bronchial breathing over both upper lobes and both apices were retracted. There had never been any cough. The extent of lung involvement was certainly unusually great considering the entire absence of cough. The physical examination left no possible doubt in my mind as to the nature of the trouble and subsequent developments confirmed the testimony of the physical signs. The patient was put on creosote, and the administration of nuclein was not begun until later. In November, she had a slight hemorrhage and the blood raised at the time was carefully examined, but with negative results. The cough accompanying the hemorrhage soon ceased. I had requested the patient to keep a wide-mouthed bottle in her room and to bring me anything and everything she should cough up. Several times she brought me samples of saliva and mucus from the throat and nares. Early in January, 1896, I found the bacilli for the first time; then the nuclein was given. However, the lungs rapidly broke down. She was carried to Colorado in February and died there about three weeks later. This case illustrates in an unusual manner how extensively the lungs may be involved in tubercular processes before the bacillus appears in the sputum, and indeed before there is any sputum.

CASE LXXII.—Mr. M., of Grass Lake, Mich.,

principal of the high school, was examined November 21, 1895. He had considered himself well until about three weeks before this examination, when he began to cough and raise. There was no physical sign except prolonged expiration accompanied by feeble moist râles over the left apex and subjacent area. The sputum was small in amount, but contained numerous bacilli. He remained under treatment for about four weeks, when on having an opportunity to accept a position in New Mexico, he went there. He improved slightly in weight during the treatment. There was no family history of tuberculosis; but he and his wife had during the summer of 1895 occupied the house of Mr. P., father of Case LXIII. Of course he might have been infected much earlier than this. However, I think this coincidence of sufficient importance to be recorded.

CASE LXXIII.—C. M., aged twenty-five, of Pin-konning, Mich., a fireman on a locomotive. There was no family history of tuberculosis and no known direct exposure to contagion. In December, 1893, he fell on a switch-stand, bruising the abdomen and injuring one testicle, which has gradually decreased in size until it is not more than one-third as large as the other one. The injury to the abdomen caused a dull pain, which continued for some months. This pain grew so severe in February, 1894, that he summoned a physician and was in bed for one week. The physician said that he had inflammation of the bowels. Some six months later he began to cough. He had been under the charge of a physician for three months before coming to me. He had suffered during this time from a persistent diarrhea. Had profuse night-sweats, and was raising abundantly. It seemed to me that the disease had extended from the abdominal cavity upward. Both lower lobes were involved and there was a pleuritic effusion on the left lung. The afternoon temperature went as high as 103° F. This man had the nuclein injections for three weeks, during which time there was some improvement in the diarrhea, but none in the lungs. He was anxious to go west, the railroad company offered him transportation, and as I did not believe that his condition would be materially benefited by the nuclein treatment, I consented. He went to Arizona and I have heard nothing further from him. I should be much surprised if the change in climate has done him good.

CASE LXXIV.—C. T., aged twenty-three, a student from Lansing, Mich. His father's half-brother had died of consumption eight months before, after a long illness in his father's house. T. had always been frail. He began to cough and raise some one year ago. Since October 1, 1895, the amount of sputum had greatly increased. His hands and feet grow cold every afternoon. There was roughened breathing over the whole of left upper lobe and some dulness over the right side. The first examination failed to reveal any bacilli, but subsequently a few were found. The injections were given for four weeks, when the cough ceased, the fever disappeared, and six pounds in weight was gained. The only evidence of any trouble in the lungs on his discon-

tinuance of the treatment was a prolonged expiratory murmur on the left side. November, 1896, he writes that he is perfectly well.

CASE LXXV.—Mrs. C., aged twenty-nine, of Seattle, Wash. There was no family history of the disease and no known exposure. She had left Seattle in September, 1895, and gone to her father's at Towanda, Pa., where she had been under the treatment of Dr. C. M. Pratt, who wrote me as follows: "Mrs. C. has been under my care for the past month for symptoms of incipient phthisis, cough, rapid pulse, night-sweats, delayed menstruation, etc. She is now somewhat better, weight increased, cough less, night-sweats better, and she has menstruated. Her treatment has been creosote, phosphate of iron, and one-sixtieth of a grain of picrotoxin for night-sweats." I found bronchial breathing over the upper part of the left lung. The quantity of sputum was small and bacilli few. Her weight was 116 pounds. She had the nuclein injections for nearly three months, before which time her cough had ceased altogether and no abnormality could be detected in the lungs. Under date of August 16, 1896, she wrote me from Sidney, Wash., that she weighed 133 pounds and had never felt so strong and well. She has not been troubled with colds and has no cough.

CASE LXXVI.—Mr. H., aged twenty-four, of Decatur, Ill., came to me in August, 1895. It will be seen that this case is reported out of chronological order. This is done because it was not a case of pulmonary tuberculosis. The disease was located in the bladder. He had been troubled about three months before consulting me with frequent and painful micturition. He had been sounded for stone with negative results. Examination of the bloody urine showed the presence of numerous pin-head lumps, which, on being crushed between cover glasses and stained, revealed great numbers of tubercle bacilli. Guinea-pigs inoculated with the urinary sediment developed tuberculosis. The treatment was begun by me and continued by Dr. Barnes of Decatur. Early in September, 1895, he began his work as teacher in the Decatur High School. At that time his afternoon temperature frequently rose as high as 103° F. Before December, 1895, the urine had become normal, and had so remained. There is now no evidence of the existence of any disease.

Summary.—The cases reported in this and the preceding paper include all those in which the tubercle bacillus was found, treated by me with yeast nucleinic acid, from May, 1893, to December, 1895. There has been no selection of cases to report, and no exclusion. Many were in the last stages of the disease when the treatment was begun. Indeed, some of them were at that time confined to their rooms, and died within a few weeks. In my study of the value of yeast nucleinic acid in the treatment of tuberculosis, I have endeavored to carry out the investigation as I would a series of laboratory

experiments and, above all, not to deceive myself. Of the seventy-six cases reported, seventy are those of pulmonary tuberculosis. Of these, thirty (42 $\frac{1}{2}$ per cent.) have died. Of these, at least nine were temporarily benefited.

Of the seventy, seventeen (24 $\frac{1}{2}$ per cent.) have been continuously free from the bacillus for from one month to two and one-half years, so far as can be determined from the sputum; *i.e.*, either there has been during this time no sputum to examine or that examined has failed to reveal the bacillus. To the best of my knowledge, another (No. 47) has been free from the bacillus for more than a year, and another (No. 29) has been free from the bacillus with the exception of a short time, and still another (No. 24) was free when last examined. Twenty (28 $\frac{1}{2}$ per cent.) were still infected at the last examination. Of these, sixteen have been apparently improved by the treatment. It should be stated that none of these were hospital cases. I was not able to control their diet. Most of them were not rich, and had only inexpensive food. The hygienic conditions under which many of them have lived have not been satisfactory.

Of the five cases of urinary tuberculosis, four have apparently been cured. One was temporarily benefited, but developed acute miliary tuberculosis and died. The one case of joint tuberculosis has been benefited.

Since the first of January, 1896, I have treated between thirty and forty additional cases of pulmonary tuberculosis with nuclein, but since most of these have been given the five and the ten-per-cent. solutions of nucleinic acid by the mouth, some with and some without hypodermic injections of the one-per-cent. solution, and since sufficient time has not elapsed to draw positive conclusions concerning the value of this method of administration, I will defer further details until another time. Moreover, to report additional cases would require that this paper be lengthened beyond all proper limits.

I have treated several cases which I believed to be tuberculous, but the bacilli could not be found. These are not included in the list already given, and I will now proceed to detail two which seem to me of special interest:

In May, 1895, I was called to Battle Creek, Mich., where I saw, in consultation with Dr. Alvord, a Mr. D. His mother's family had furnished several consumptives, and a brother had had one leg amputated by Dr. John B. Hamilton of Chicago on account of tuberculosis of the knee-joint. The patient, who was unmarried and twenty-eight years old, had been failing in health for the past six months, latterly very rapidly. February 1, 1895, he weighed 136 pounds; at the time of my visit eighty-two pounds. He had an

exhaustive mucus diarrhea, with night-sweats, and the temperature curve of tuberculosis. The lungs were normal and the heart very weak, but without organic disease. The abdomen was retracted, and no enlarged glands could be found. A few weeks before my visit Dr. Alvord had operated upon him for fistula in ano. The wound was still discharging. I examined the stools and the pus from the wound for tubercle bacilli, but with a negative result. I advised that the bowels be irrigated two or three times a day with large volumes of water, and that after each irrigation two drams of the one-per-cent. solution of yeast nucleinic acid with fifteen drops of laudanum be injected. Teaspoonful doses of the nucleinic-acid solution were also given by the mouth three times a day. From the time of my visit until September 1, 1895, about one gallon of the nuclein solution was used, and the patient gradually improved. By September, 1895, he was able to walk out, and in January, 1896, he resumed his work. He has continued well. His present (November, 1896,) weight is 130 pounds. He eats without discrimination, has daily normal movements, and attends to his duties as proprietor of a dry-goods house.

Miss S., of Port Huron, Mich., aged eighteen, came to me by the advice of Dr. Wilson of that place, April 4, 1895. Father and mother are both living and well. In short, the only consumptive in the family is a cousin, with whom the young lady has occasionally visited. Her weight had fallen from 129 pounds to 105 pounds within six weeks. Night-sweats were profuse and exhausting. The following letter from Dr. Wilson forms the best statement of the history of the case:

Port Huron, April 9, 1895.

DEAR DOCTOR:—I had intended to send with the patient a statement of the origin and progress of the lung involvement, but I misunderstood the time fixed for the departure and was too late.

I think it was February 18th, that her mother brought Miss S. to me. She was very anemic, weak, and feverish. I made no examination of the lungs at that time, but did four days later. I was again struck with the great anemia. The exertion of walking across the room would cause very rapid pulse and breathlessness. I found the upper part of the left lung involved. About two weeks after this, Dr. Stewart, on my invitation, examined the lung, and found a small area of dulness about the line of junction of the upper and middle lobes of the right lung. On examination I confirmed this discovery. The dulness spread up and down and in all directions from this focus, and within two weeks involved the whole of the right lung. I watched its progress closely, and know this to be a fact. The afternoon temperature soon reached 100° F., then ran up to 102°, to 103°, and sometimes to 104° F. At times I doubted my diagnosis of tubercular infection, as the cause of the dulness, but could find no other solution for it. At the time she left, the dulness was not quite so marked in the right apex as it had been. There was very little cough, for the amount of lung involved, and she had certainly gained in strength, but had lost in weight. Her appetite had also improved, and there was a morning remission in the fever, which before had been continuous. I had the nuclein and thought of using it, but concluded that it promised nothing in a case of such acute nature, so I prescribed tonics and remedies

to meet symptoms as far as possible, I will be glad to hear from you concerning her. Yours,

MORTIMER WILSON.

Menstruation had not appeared for three months past. The mother told me at the time of examination that the patient had been failing in health noticeably since early in December, 1894. My notes taken at the examination read: "Upper lobe of right lung partially consolidated and numerous râles heard throughout upper lobe of left lung. There is a distressing cough, but the patient has never raised anything." The temperature the day before beginning the treatment was as follows: 8 A.M., 98.5°; 1 P.M., 101°; 4 P.M., 103°; 8 P.M., 102.8° F.

The treatment was begun April 5th with 40 minimis, which was doubled the next day, and kept at 80 minimis during the course of the treatment. The temperature gradually fell as is shown by the following: May 8, 8 A.M., 98.5°; 12 M., 100.4°; 4 P.M., 101.4°; 8 P.M., 100.8° F. By the middle of June the temperature remained normal, and there has been no fever since that time. When I state that the temperature gradually declined I would not have it understood that there were no exceptional days. In the latter part of April the temperature for some days ran high at 4 P.M., and once reached 104° F. The treatment was discontinued the last of June, and there has been no occasion to resume it since. At that time the lungs were quite normal and the cough and night-sweats had ceased. In October, 1895, Miss S. wrote me that she weighed 130 pounds and was quite well. In March, 1896, I saw her and she was apparently in the best of health. I did not examine her lungs.

I have reached certain positive and definite conclusions concerning the value of the one-per-cent. solution of yeast nucleinic acid in tuberculosis administered daily in doses of from 60 to 80 minimis hypodermically, and these conclusions I will now give:

1. In advanced stages of the disease, in which the area of involvement is great, with or without cavities, the best that can be expected from this treatment is temporary improvement. Even this does not occur in all cases.

2. In initial cases, when the area of infection is limited, this treatment may and often does, not only arrest the progress of the disease, but it acts as a curative agent.

If these conclusions be correct, it follows that in order to save our tuberculous patients by the employment of this treatment, we must recognize the disease in its incipiency. How can we best do this? That the presence of the bacillus tuberculosis in the sputum is a positive and conclusive proof of the existence of pulmonary tuberculosis, I assume that no one will deny. If the sputum were examined for the bacillus in every case in which there is any sputum, and as soon as there is any, thousands of cases

of tuberculosis would be recognized in time for therapeutic measures to be effective. I employ the word "sputum" here as I think it is generally understood by the profession, and not as it is defined in our medical dictionaries, nor do I use it in strict accord with its etymology. I mean to designate by the word "sputum" any secretion which has its origin in the air passages below the epiglottis, and which is ejected from the mouth. It will be seen that according to this definition saliva is not sputum, though the latter may be mixed with the former. With this definition, I say that in any instance in which the patient raises any sputum, an examination for tubercle bacilli should be made. Neither the robust appearance of the patient nor his previous excellent health, nor his family history, possibly free from any taint of tuberculosis, should cause the physician to neglect this examination. As a profession, we have been so long, so forcibly, and so painfully impressed with the old, classical picture of this disease, when it was known only in its last stages, that even now we too often fail to recognize it in the distance from failure to employ the aids to our vision with which science has recently equipped us. It is my belief that, so far as tuberculosis is concerned, our profession is to-day in greater need of skill among its members in the early recognition of the disease than it is of therapeutical agents with which to combat it.

While the careful examination of the sputum would be of great service in the early recognition of tuberculosis, I believe that in many cases the diagnosis of this disease may be and should be made before there is any sputum to examine. I will illustrate this point by the history of the following case, which I have just examined, and which might be duplicated almost any day in the practice of one giving special attention to this disease:

Miss G., aged twenty-six, a saleswoman in a dry-goods store. Her mother died, twenty years ago, of consumption. One sister died twelve years ago of the same disease. The family has lived during all this time in the same house. During the summer of 1894, Miss G. weighed 130 pounds, and was apparently a robust, vigorous woman. In August, 1895, she weighed 118 pounds, and consulted a physician for the first time in her life. She complained of great and constant weariness, loss of appetite and chilly sensations, followed by slight fever, every afternoon. The physician to whom she went in August, 1895, has treated her from that time until now for malaria and "liver trouble." In March, 1896, she had the grippe, and began to cough, for the first time in her life. She has been coughing ever since. Now she weighs 104 pounds, has profuse night-sweats, coughs almost constantly, and

there is not a normal respiratory sound to be heard in any portion of her lungs.

Now, I wish to ask, When should the treatment for tuberculosis have been begun in this case? Did the *grippe* of March, 1896, develop the tuberculosis? What caused the loss in flesh so plainly recognized in August, 1895? What caused the daily chilly sensations and the afternoon fever at that time? Are not the chances ten to one—yes, one hundred to one—that she was tuberculous then? Are we to wait until the bacillus grows vigorously and lung tissue begins to break down before we even suspect the existence of a disease so frequently present that it destroys one-seventh of the race? Does the surgeon wait until the inflamed appendix ruptures and every doubt of the nature of the trouble is removed by the collapse of the patient before he operates? If he did this, would the operation statistics for appendicitis be as favorable as they now are? I have no doubt that a healthy appendix is sometimes found by the operator, and it might happen, did we not wait for the appearance of the bacillus, that some non-tuberculous person would be treated for that disease, but the operation, skilfully done, does not kill, nor would the treatment for tuberculosis do harm. In many cases tuberculosis can be recognized before the bacillus appears in the sputum, with as much certainty as appendicitis can be diagnosed before rupture occurs.

Have we not a well-known method for the recognition of malaria when it has a real existence? Have we not in quinin, the one specific known to scientific medicine, a test for malaria? We have these, but we do not take the trouble to examine a drop of blood from the finger for the plasmodium, and although quinin fails to prevent the daily return of the afternoon "flush," we excuse our neglect, console our patients, and give the bacillus tuberculosis ample time to destroy the lungs, while we fire our quinin pills and capsules at a phantom.¹

The physician who desires to recognize tuberculosis in its earliest stages must take into consideration all the known signs and symptoms of the disease. In one instance the bacillus may appear in the sputum early, in another late, and in a third not at all. In our reliance on the detection of the bacillus, we must not neglect the evidence which we may gain by auscultation, by percussion, by carefully watching the temperature, etc. I will put in condensed form my ideas concerning the means which should be employed in the early recognition of tuberculosis:

¹ It is an interesting fact that malaria was once regarded as antagonistic to tuberculosis. This view was especially championed by Buffalini and other Italians, and this supposed antagonism was cleverly used by Brehmer in explaining his theories. See "Die Gesetze und die Heilbarkeit der Chronischen Tuberkulose der Lunge," Berlin, 1896.

1. Whenever there is any sputum it should be examined for tubercle bacilli. If the bacilli are not found in the first examination the search for them is to be repeated. When the bacilli are present the diagnosis of tuberculosis is positive. Failures to find bacilli, even after repeated examinations, does not prove the absence of tuberculosis. The complete absence of cough and of sputum is not proof of the non-existence of tuberculosis.

2. Apical catarrh, even when no bacilli are found in the sputum, is in the great majority of instances due to tuberculosis. Leube is certainly right when he says: "Marked dulness of the percussion note over the apex is always ('fast immer') a symptom of pulmonary tuberculosis, especially when the dulness is unilateral, and is detectable also in the infra-clavicular fossa or in the regio supraspinata. . . . Still more certain is the diagnosis when the dulness on percussion is accompanied by auscultatory variations from the normal. The slightest variations in the respiratory sounds suffice here, such as jerky breathing, prolonged expiration, feeble or intensified, or rough vesicular breathing, and indefinite respiratory sounds. If the breathing be of bronchial character, or if there be râles, even when these are isolated, the slightest percussion dulness in the apex becomes of great diagnostic significance."

Among the very earliest variations in respiratory sounds in tuberculosis is a prolonged expiratory movement. When this is accompanied by retraction of the apex and dulness on percussion, there can be but little doubt about the diagnosis. This prolongation of the expiratory sounds is so easily and so certainly recognized and its diagnostic value is so great that I wish to emphasize this mention of it.

There is a tendency among medical men at present to pronounce no disease of the lung tuberculous unless the bacillus is found in the sputum. I had myself fallen for awhile into this error. Such cases as the following lead me to believe that this is an error:

P., now aged fifty-six, had consulted me occasionally for years. As early as 1893 he began to lose weight and to complain of weariness upon slight exertion. This decrease in weight has slowly continued. During the winter of 1894-95, he had frequent and persistent colds, during which he coughed up mucus. There was at that time only a prolonged expiratory sound over the right apex and subclavicular region. The sputum was examined during these colds, but always with negative results. In the fall of 1895, he returned from his vacation with a well marked apical catarrh on the right side. The sputum was examined repeatedly during the following winter, but again negatively. On account of the failure to find the bacilli, the nuclein was not employed. In September, 1896, he returned from a three-months' vacation with a cavity under the clavicle on

the right side, with the left upper lobe involved and his sputum laden with bacilli.

3. I will again quote from Leube as follows: "It has recently become more and more certain that the apparently spontaneous pulmonary hemorrhages which occur in those supposedly well are not causes of tuberculosis, but are the results of a disease already established." The teaching of Niemeyer¹ that pulmonary hemorrhage is a cause of tuberculosis was founded upon erroneous ideas of both the etiology and pathology of the disease and should have been discarded years ago. I have already called attention to the desirability of examining the blood for tubercle bacilli in every case of pulmonary hemorrhage. The germs will not always be found, even when the hemorrhage is of tubercular origin, as it is in the great majority of instances, but when they are found there can be no longer any doubt about the nature of the lesion. I have seen so many cases in which the golden opportunity for beginning proper treatment, medicinal or climatic, has been indicated by hemorrhage, the warning has been disregarded, and the disease has next manifested itself in a grave form, that I desire to briefly report one such case:

A young lady of eighteen had in February, 1895, a slight hemorrhage and continued for some days to cough up blood. A physician pronounced it vira-
cious menstruation, finding some reason for this in the fact that the monthly flow had been somewhat scanty. The young lady began to cough late in the spring of 1896, and an examination of the lungs in July of this year showed dulness over both upper lobes, bronchial breathing with bubbling râles, a small cavity in the left subclavicular area, and an extensive pleuritic effusion over the lower half of the right lung. The sputum contained innumerable pin-head tubercles, and these crushed between cover glasses and stained were found to be full of bacilli.

Now, can any one with the subsequent history known doubt that this patient was tuberculous in February, 1895? With instances of this kind coming under professional observation constantly it does seem that we should interpret the significance of early hemorrhage more correctly.

The studies of Rindfleisch have made us acquainted with the pathology of hemorrhage in initial tuberculosis. The tubercular process extends into the wall of the artery destroying the media and at times the intima, thus forming a spot where the rupture occurs. Fortunately this usually happens in one of the very small end arteries, and the hemorrhage is consequently slight. According to Rühle, late hemorrhages are of somewhat different origin and are more likely to be serious. Here the arteries in the walls of cavities,

being left unsupported by the destruction of the adjacent tissue form aneurismal sacs which break.

There is considerable difference of opinion among the authorities concerning the effects of hemorrhages in pulmonary tuberculosis upon the temperature. According to Wunderlich,¹ Lebert,² and Schwarz,³ even slight hemorrhages in any and all stages of the disease are followed by at least a temporary depression of temperature. While Niemeyer⁴ and Uhrig⁵ state that hemoptosis is usually followed by an elevation of temperature, and Simonsohn,⁶ that there is no uniformity in the effects, I wish to state in this connection that when a supposedly healthy person has come to me on account of pulmonary hemorrhage I have always found at some time of the day, usually in the afternoon, an elevation of temperature. Of course I cannot say whether these persons were febrile before the hemorrhage or not.

4. It is stated by good authorities that some cases of pulmonary tuberculosis run their entire course without any elevation of temperature. I have never seen such a case. I fail to find any such case reported in sufficient detail to justify me in believing the statement to be true. When the temperature is taken only morning and evening, the record may show no elevation; especially is this likely to be true when the evening record is made late. However, this is not the correct method of taking the temperature in this disease. The maximum temperature is, in the great majority of instances, in the afternoon, and not in the evening. My experience leads me to believe that the temperature curve of tuberculosis is as characteristic as that of typhoid fever; and, indeed, there are fewer variations than in typhoid. While there are exceptions and while exercise often markedly alters the temperature of a given hour, the rule holds that the maximum is between three and six P.M. The record should always be made at eight A.M., twelve M., four P.M., and eight P.M. When this is done the maximum will, in the majority of instances, when averaged for a week, be at four P.M.

In acute miliary tuberculosis the temperature curve is very irregular and my observation confirms the statement of Rühle⁷ who says: "The irregularity of the fever curve of miliary tuberculosis is of importance in distinguishing it from other febrile diseases from which it otherwise might be confounded."

It would seem to be superfluous to say that but

¹ "Eigenwärme in Krankheiten."

² "Veränderungen der Körperwärme im Laufe der Tuberkulose."

³ "Ueber den Fieberverlauf bei Phthisis pulmonalis."

⁴ "Klinische Vorträge über die Lungenschwindsucht."

⁵ "Welchen Einfluss hat das Blutspeim auf die Temperatur bei Phthisis," 1885.

⁶ "Hat das Haemoptoe einen charakteristischen Einfluss auf die Temperatur," 1887.

⁷ "Die Lungenschwindsucht und die Acute Miliartuberkulose."

Ziemssen's Handbuch.

little reliance can be placed on the patient's statement that there is no fever. However, I have this day received a letter in which a physician writes substantially as follows: "Mrs. A. has been tuberculous for two years. She states that she has been free from fever, but I find that since I began the nuclein her afternoon temperature sometimes goes as high as 101° F." In all cases it is well to have a temperature record for a week before treatment is begun.

Burkhardt, working under Strumpell, has written a monograph on the temperature in tuberculosis.¹ This monograph is a good illustration of the careless manner in which the temperature in tuberculosis has been studied even in some of the most renowned clinics. Burkhardt makes five classes of temperature curves in tuberculosis:

(1) Afebrile, both in the beginning and during the course of the disease. (2) Subfebrile: "In a large number of cases the morning temperature is (zwar) normal, while the evening temperature shows a slight elevation (from 38° to 38.5° C.)." (3) Hectic fever: "The morning temperature is normal, while the evening temperature goes to 39° or 39.5° C." (4) Continued fever (Volliges Verschwinden normaler Eigenwärme). (5) Irregular temperature (Grosse Unregelmässigkeit des Wärmeganges).

5. Loss of weight is practically a constant and frequently an early accompaniment of tuberculosis. However, before any significance can be attached to loss of weight in our endeavor to make an early diagnosis, other causes of the loss must be excluded. Loss of weight, when coupled with the characteristic temperature curve furnishes very strong presumptive evidence of the existence of tuberculosis in some part of the body. Much has been said about a "pretubercular" condition, in which there is a decrease of weight, a sensation of general weariness, and loss of appetite, and which is supposed to render the person especially susceptible to tuberculosis. It is in these cases that an attack of influenza, measles, whooping-cough, pleurisy, pneumonia, or a "bad cold" is so frequently supposed to be the starting point of consumption. The physician recognizes this so-called "pretubercular" condition. Sometimes he administers iron, quinin, and other tonics, and thus tries to prepare the patient for the disease to which he is supposed to be specially susceptible, and I am by no means ready to deny that this treatment is beneficial. However, the mistake is made in looking upon this condition as "pretubercular"; it is tubercular, and the time to treat it is before the tuberculosis becomes a mixed infection by the advent of some intercurrent disease.

¹"Ueber das Verhalten der Eigenwärme bei der Lungentuberkulose," 1891.

In taking the weight it is well to use the tables of Quetélet² or some modification of the same as a basis of comparison. Conradi³ has given us a valuable paper on the decrease in body weight in tuberculosis, and he has pointed out the fact that decrease in weight is important evidence of the disease in its early stages. This decrease is due to want of assimilation; later, it may be in part due to fever. Conradi has pointed out the following facts: (1) The decrease in weight is greater in proportion to the prostration accompanying it than in most diseases. (2) The younger the patient the greater will be the loss in weight necessary to induce prostration. (By prostration the author here means inability, from weakness of the patient, to attend to his ordinary duties.) (3) After prostration decrease in weight continues, but, as a rule, not so rapidly.

Besides the above-mentioned evidences of tuberculosis there are many other conditions which should lead us to suspect the existence of this disease. Although thirty years have passed since Flemming⁴ showed that pleurisy is due in a large per cent. of the cases to coexisting and preexisting tuberculosis, the profession has given but little attention to this matter, and attack after attack of pleurisy in the same individual is treated, while the tuberculosis, which is the cause of the pleurisy, is never thought of until the lungs are practically destroyed.

In 106 post-mortems Schlenker⁵ found the pleura normal in twenty-one bodies (19.8 per cent.); pleura diseased in eighty-five (80.2 per cent.). The pleurisy was associated with extensive tubercular changes in the lungs in twenty-eight (26.4 per cent.); with latent tuberculosis of the lungs or bronchial glands in thirty-three (31.1 per cent.). There was tuberculosis without pleurisy in four (3.4 per cent.); and pleurisy without tuberculosis in twenty-four (22.6 per cent.). The author states that if tubercular lesions had been sought for microscopically the number of cases of pleurisy without tuberculosis would have been decreased.

I have come to believe that when physicians acquire and practise in the diagnosis of tuberculosis a degree of skill equal to that employed by surgeons in the recognition of appendicitis, pulmonary tuberculosis will be detected in its earliest stages; and when this is done it will be placed among the most easily curable of the graver infectious diseases.

²"Sur l'homme et le développement de ses facultés."

³"Ueber das Körpergewicht des Menschen und die Abnahme bei der Tuberkulose," Leipzig, 1843.

⁴"Ueber die Häufigkeit der Combination von Pleuritis und Tuberkulose und das Abhängigkeitsverhältniss beider Krankheiten von Einander," Weimar, 1876.

⁵"Beiträge zur Lehre von der menschlichen Tuberkulose." See Deutsche Med. Wochenschrift, 1883, Nos. 31 and 32. Also Virchow's Archiv., B. 108, S. 233.

CLINICAL MEMORANDA.

A CASE OF SPLENO-MEDULLARY LEUKEMIA;
ONE OF LYMPHATIC LEUKEMIA, OR
SPLENIC ANEMIA; AND FOUR CASES
OF PERNICIOUS ANEMIA.¹By H. A. HARE, M.D.,
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JEFFERSON MEDICAL COLLEGE HOSPITAL.

THE cases that I desire to show you to-night are three in number; and, in addition, I shall speak of three others. Of these six cases, representing various types of blood disorder, one is a case of undoubted spleno-medullary leukemia, and the diagnosis of the second lies between splenic anemia and lymphatic leukemia. The other four are cases of pernicious anemia.

The first case is that of D. B., aged thirty-three years, of Wilmington, Del., who is single and by trade a carpenter. He came under treatment October 7, 1896. His family history is negative. Two brothers and three sisters are in good health. The patient has worked in the Wilmington Car Shops for about sixteen years, and has never been seriously ill. He has never had chills, fever, or sweats, but has lived in a malarial district. He has been in the habit of drinking two or three glasses of whisky a day, and has occasionally gotten drunk. There is no specific history. Five years ago he began to have indigestion, the result, as is supposed, of irregular and hasty eating. These attacks consisted of headache and vomiting, were often accompanied by fever, and occurred at irregular intervals until the present trouble began. Five months ago he noticed a fulness of the abdomen, which he thinks has not increased in size since then. He did not suffer pain, but had a heavy dragging sensation in the stomach. He paid but little attention to his trouble and kept on working. About three months before admission he was conscious of a gradually increasing weakness, and this being accompanied by considerable dyspnea, he decided to consult his family physician, Dr. Brown of Wilmington, who treated him for several weeks and then brought him to the Jefferson Medical College Hospital.

On the day of his admission an examination of his abdomen revealed an immensely enlarged spleen extending considerably beyond the median line and to about three inches below the umbilicus. His general condition was good, and he had kept at work up to the date of his admission. His tongue was only slightly coated, the bowels were regular, and the appetite fair. His urine was acid in reaction, the specific gravity was 1024, and it did not contain albumin or sugar. Microscopic examination was negative. An ophthalmological report made on October 16th revealed the fact that the media and fundus were normal, that the field for form and color was normal, and that the veins were large and tortuous. There was no evidence of hemorrhage.

The patient was given increasing doses of Fowler's solution of arsenic until, at the end of a month, he was

¹ Read before the Philadelphia County Medical Society, March 10, 1897.

taking eight drops three times a day. He also received a dram of fluid extract of ergot thrice daily. On November 16th, on account of gastric irritability, fifteen drops of the Fowler's solution were given daily by the rectum, the ergot being continued by the mouth. The arsenic solution was gradually increased until forty-one drops were given twice daily, still per rectum. On December 7th the solution was increased to forty-five drops a day, in three doses, but on December 20th it was stopped on account of diarrhea. On the 21st he was given fifteen drops of the arsenic solution and a dram of ergot by the mouth daily, and this was continued until January 12th, when I went on duty at the hospital. The administration of the ergot was then stopped, but the Fowler's solution was continued, and was increased until he was taking thirty-two drops daily. On the 20th gastric disturbance again developed, and the arsenic was discontinued, but on February 2d it was resumed, but in smaller amounts. The examinations of the blood, from the date of his admission to the present time, have given the following interesting results:

Date.	Hemoglobin, per cent.	Erythrocytes.	Leucocytes.	Proportions.
Sept. 30, 1896	28	2,458,000	368,750	1 to 6, L. 6 per cent., M. 15 per cent., P. 60 per cent., E. 5 per cent. ¹
Oct. 2, "	25	2,700,000	386,000	1 to 7.
" 16, "	28	2,800,000	241,666	1 to 11.
" 26, "	40	2,322,000	139,000	1 to 16, L. 1 per cent., M. 26 per cent., P. 51 per cent., E. 4 per cent., My. 3 per cent.
Nov. 8, "	45	2,054,000	118,000	1 to 17.
" 20, "	50	2,148,000	93,750	1 to 23.
Dec. 25, "	60	3,600,000	217,190	1 to 17.
Jan. 9, 1897	63	4,000,000	60,000	1 to 68, L. 4 per cent., My. 4 per cent., P. 66 per cent., E. 10 per cent., M. 6 per cent.
Feb. 2, "	63	4,000,000	19,000	1 to 210.
" 16, "	70	4,100,000	80,000	

It will be seen, therefore, that at first the condition of the blood was bad, there being 368,750 white cells to 2,458,000 red ones. Myelocytes were present, and the lymphocytes were decreased in number. The number of polynuclear cells was about normal, and the number of the mononuclear cells increased.

Physical examination of the patient, January 12th, showed the spleen to be enlarged, as shown in the accompanying picture (Fig. 2). At the present time it has decreased two-thirds in size, and the man is almost well.

The second case presents a most interesting history. The patient was under my care for several months a year ago. At that time the splenic enlargement was such as is shown in Fig 3.

There were areas in which loud anemic murmurs were heard; his color was sallow, and his eyes had that peculiarity

¹ The letter L. stands for lymphocytes, M. for mononuclear leucocytes, P. for polynuclear or polymorphous leucocytes, and E. for eosinophiles. My. stands for megalocytes.

ilar fatty, yellow appearance seen in some cases of pernicious anemia. His history is as follows:

J. P., aged twenty-four years, single, a barber by occupation. Both parents are dead, the cause of death being unknown. One brother died in infancy, and one sister, six or seven years ago, of pulmonary consumption.

FIG. 1.

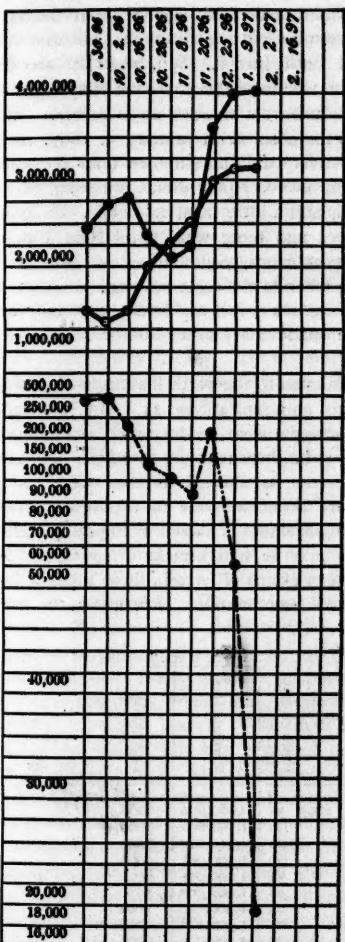
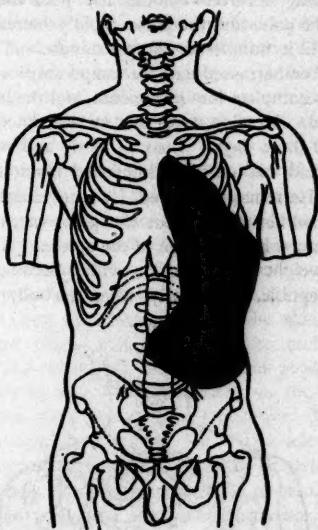


Chart showing the great decrease in white cells and the increase in red cells and in hemoglobin in Case I. of spleno-medullary leukemia.

Two sisters are alive and well. The patient stated that he had never been in the habit of taking whisky, and has smoked only in moderation. He had measles at seven years of age, and an attack of *grippe* seven years ago that confined him to bed for four weeks. Part of this time he was delirious. In February, 1894, he states that he had a severe attack of double pneumonia, but completely recovered in five weeks. In November of the same year he, at that time being a miner, lost his balance while at work and rolled for a distance of about thirty

feet, sustaining considerable injury to the head and neck. He was unconscious when picked up, but reacted speedily, and two weeks later resumed work.

FIG. 2.



CASE I.—January 12, 1897. Lightly shaded area shows area of cardiac and splenic dulness on percussion. The dark addition near the umbilicus shows the additional splenic area discoverable on palpation. On March 10, 1897, the spleen extended only to three inches below the last rib in the mamillary line.

On October 8, 1895, he was admitted to the Jefferson College Hospital for the first time, and stated that his illness

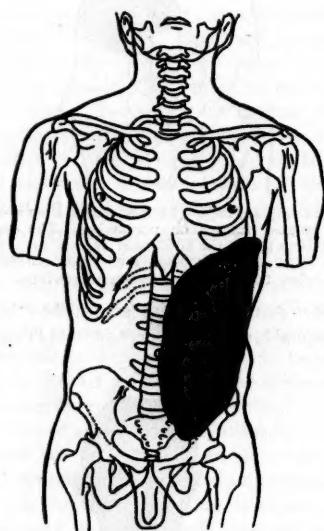
FIG. 3.



CASE II.—The large outline shows the splenic area; the smaller ones the situation of anemic murmurs. This patient began in July, 1895, the onset being marked by moderately severe pain beneath the clavicle. It persisted at this

point for three days, and then descended to the left hypochondriac region and became intense. A few days previous to the onset of pain, he noticed puffiness beneath the eyes and a decided swelling of the entire face. Profuse sweating occurred coincidently with the pain, the face became pale, and the pulse rapidly increased in frequency until it numbered 160 per minute. The respirations were embarrassed, and the temperature was 100° F. There was complete loss of appetite, and the bowels were constipated. He also states that he was unconscious for a period of three days. Loss of flesh and strength was marked, and his weight diminished from 130 to 116 pounds. He remained in bed for one month afterward and regained his weight, but the pain, varying in intensity, continued in the region of the spleen. There was a sense of weight in this region which became more and more perceptible, particularly, when the body was jarred.

FIG 4.



CASE II.—January 12, 1897. Shows area of splenic dulness as compared to the illustration showing its size in 1895.

When admitted to the hospital the most noticeable feature of the case was the extreme pallor of the face. The conjunctivas were tinged with yellow, and the complexion was sallow. The lips, gums, and tongue were bloodless. The tongue was clean but flabby, the appetite fairly good, the bowels regular, the pulse 94, the respirations 22, and the temperature 102.4° F. Examination by palpation showed a large mass occupying the left hypochondriac region and extending back into the lumbar region. Auscultation of the heart revealed an anemic murmur at the base. A venous hum was heard in the neck.

The urine was amber colored, acid in reaction, and of a specific gravity of 1025. There was no albumin or sugar. Urea was present in the proportion of four grains to the ounce. The microscope showed red blood-cells in abundance, and a few granular leucocytes and epithelial cells.

On October 30, 1895, an ophthalmoscopic examination

showed numerous hemorrhages through the retina of each eye. They were old and irregular in outline, and especially abundant near the disks. The veins were large and tortuous. On October 21st and 23d the patient had several slight attacks of epistaxis. He left the hospital on December 23d, promising to return to the out-patient medical department to have his blood counts made. On February 4, 1896, he returned complaining of hematuria. He was slightly paler, but was in about the same condition as when he left the hospital. He now remained in the ward until July 6, 1896, when he was discharged, against the wishes of the physician in charge, but slightly improved, and went to work as a barber. He again returned to the hospital on January 9, 1897, and said that he had felt very well all summer until September, when he was put on very poor diet, consisting of tea, coffee, rye-bread, and a little meat at noon. He gradually became more and more weak until New Year's day, but still kept at work, complaining of general weakness, headache when in the erect position, shortness of breath, and swelling of the feet and limbs, especially after standing. He made the journey to the hospital in the ambulance.

On admission to the wards his temperature was 101° F.; pulse, 130, and respirations, 24. On January 13, 1897, the writer again went on duty, and examination showed murmurs to be present in the carotids. The anemic murmurs were not as marked as they were last year. He had severe bronchitis due to exposure. The degree of splenic enlargement is shown in Figure 4. On February 20th and 21st he had attacks of epistaxis. He was ordered fifteen grains of ferratin three times a day.

His blood examinations have given the following results:

Date.	Hemoglobin, per cent.	Erythrocytes.	Leucocytes.	Remarks.
Oct. 9, 1895	30	2,060,000	6000	
" 12, "	30	1,792,000	6000	
" 15, "	20	1,400,000	9000	
" 17, "	20	1,400,000	9000	
" 21, "	14	1,100,000	6000	
" 25, "	18	1,000,000	7000	
Nov. 4, "	23	1,300,000	5000	
" 12, "	25	1,500,000	6000	
" 21, "	30	1,600,000	6000	
Dec. 7, "	32	1,800,000	7000	
" 25, "	30	1,950,000	5000	Lymphocytes 84 per cent., mononuclear 4 per cent., polynuclear 8 per cent., eosinophiles 3 per cent.
Jan. 20, 1896	30	2,152,000	6000	
Feb. 12, "	38	2,545,000	8000	
" 29, "	42	2,580,000	7000	
Mar. 10, "	35	2,000,000	6000	No alteration in the shape of the erythrocytes.
April 1, "	35	2,180,000	5000	
" 23, "	38	2,000,000	5000	
" 29, "	38	1,992,000	6000	
Jan. 11, 1897	30	2,000,000	4500	
" 30, "	48	2,800,000	4000	
Feb. 5, "	35	2,500,000	5000	
" 10, "	33	2,024,800	6200	

The large number of lymphocytes (eighty-four per cent.) in this case would apparently place it under the head of that somewhat rare type of leukemia called lymphatic leukemia, but there is an entire absence of enlargement of the lymph glands and, what is far more important, the increase in lymphocytes is purely relative, the total number of white cells being actually lower than normal. Aside from this state of the white blood cells, the case might well be classed with what has been called pure splenic anemia, or splenic pseudo-leukemia. Thus, we find the enlarged, and at times painful, spleen, the fact that the disease is commonly found at this patient's time of life, and in his sex, and that the anemic fever has also been present. Further than this, in splenic anemia we often have a decrease in the number of red cells to one-half, with a similar falling off in hemoglobin. Banti has regarded this state as a purely splenic form of pseudo-leukemia, or Hodgkin's disease.

The third case is one of true pernicious anemia, which may, perhaps, be placed among the few that have been cured. The patient certainly shows a wonderful improvement, and one that is more marked than is usually met with in cases of this disease. He is before you, and you can at a glance perceive his ruddy hue. His history is as follows:

F. R., aged thirty-nine years, a lumberman, single, born in Ireland. He was admitted to the Jefferson Medical College Hospital on May 11, 1894.

His parents died at an advanced age, the cause of death being unknown to him. They had always been very healthy. The patient is one of nine children and, so far as is known, all of his brothers and sisters have always been in good health. His previous history is that he had some of the diseases of childhood, but after that was exceptionally strong and healthy, having no sickness of any kind until about twenty years of age, when he had an attack of serous diarrhea, which lasted all summer. The cause of the attack is not known. The diarrhea disappeared during the winter, but has persisted every summer since the first attack, with occasional outbreaks, however, during the winter months. Fourteen years ago he had croupous pneumonia. He was sick three weeks, and then recovered completely. After this he had good health, excepting the above-mentioned diarrhea, until April, 1893. At that time he began to have nausea, with occasional attacks of vomiting, unconnected with the taking of food. The vomited matter consisted usually of greenish mucus or fluid, but was never in large quantity. During the worst periods of the attacks he would vomit two or three times daily. He had a poor appetite, and noticed that his skin was quite yellow. His diarrhea and vomiting continued to get worse, and in May, 1893, he entered the Williamsport Hospital, where he remained four months, under treatment for "some disease of the liver." After leaving the hospital he felt better, the vomiting ceased, the diarrhea had disappeared, and he had gained considerably in weight, but he remained very weak. He worked for a while driving a team, but this work soon became too hard for him, and in April the old trouble returned as before, and continued to grow steadily

worse. He decided to come to Philadelphia for treatment, and was admitted to Jefferson Hospital on May 11, 1894.

His condition on May 18, 1894, was as follows: He presented a markedly anemic appearance, the skin having a slightly yellowish tinge. The lips and ears were almost bloodless, and the tongue pale, but clean. His appetite was fair, and his bowels quite loose. He had been gradually losing weight. His temperature ranged from 99° to 101° F., his respirations from 24 to 30, and his pulse from 68 to 80.

An ophthalmological examination showed that his pupils responded to light and accommodation. The conjunctive were infiltrated with a lemon-yellow fat. There were numerous fresh and old hemorrhages into the retina. The disks were anemic, and the veins and arteries could scarcely be distinguished on account of the pallor of the blood. A chest examination showed the skin to have a light yellow tinge, with extreme pallor and superficial edema. The respiratory movement was good, and there was slightly increased vocal fremitus on the right side. Auscultation and percussion were negative. The impulse of the heart could scarcely be felt. The apex beat was normal in position, but it could only be determined by auscultation. There was no increase in cardiac dulness. Auscultation revealed a soft systolic murmur, heard best at the base and at the second costal cartilage at the left of the sternum, which was not well transmitted into the neck. The liver was normal in size and could not be palpated. There was no increase in the area of splenic dulness. The abdominal examination was otherwise negative. The feet were slightly edematous. The urinary examination showed it to be acid in reaction and light yellow in color. No albumin or sugar could be found. The specific gravity was 1014. Repeated examinations of the feces did not reveal the presence of parasites of any description. The sputum examination was negative.

The blood examination gave the following results:

Date.	Hemoglobin, per cent.	Erythrocytes.	Leucocytes.	Volume, per cent.	Remarks.
May 14, 1894	15	973,000	7000	25	Microcytes, macrocytes, poikilocytes.
June 14, "	10	664,000	5000	14	
July 9, "	50	2,500,000	5000	50	Almost all corpuscles are normal.
" 24, "	55	2,600,000	8000	52	
Aug. 14, "	55	2,650,000	9875	53	
Sept. 12, "	60	3,200,000	10,000	76	

The patient was discharged from the hospital September 13, 1894, very much improved in health. His symptoms had all disappeared. He then went to work in the pine forests of Bradford Co., Pennsylvania, and his old trouble gradually returned. He was again admitted to the hospital August 28, 1896. He was very weak and anemic, and had diarrhea and vomiting, with pain over the epigastrium. He also had considerable cough with a clear, frothy expectoration. The urine was acid in re-

action, and had a specific gravity of 1022. No albumin or sugar was present. The ophthalmologic report on September 22, 1896, was as follows: Pupillary reaction normal; conjunctiva pale; media clear; nerve white; veins tortuous; retina apparently normal in both eyes. Vision O. D. $\frac{4}{5}$; O. S. $\frac{5}{6}$. In the right eye no hemorrhages had occurred, the veins were full, and there was some chromatic disturbance. The left eye showed a round disk, very pale, full veins, and a patch of chorioiditis near the nasal side of the disk. Following is the record of his blood count since his last admission:

Date.	Hemoglobin, per cent.	Erythrocytes.	Volume, per cent.	Leucocytes.
September 1, 1896.....	35	1,180,000	23	5000
" 7, "	35	1,150,000	23	6000
" 14, "	26	1,109,000	23	4000
" 21, "	26	941,000	20	3120
" 22, "	23	886,000	20	3800
" 23, "	25	1,200,000	22	5000
" 24, "	28	1,045,000	21	3125
" 28, "	26	1,333,250	26	6250
October 10, "	30	1,500,000	31	3750
" 19, "	36	1,213,000	26	9275
" 29, "	51	1,600,000	35	9375
Novemb'r 17, "	65	1,400,000	30	10,937
December 4, "	88	3,960,000	78	14,000
January 5, 1897.....	65	3,200,000	65	9375
" 16, "	60	3,080,000	62	9375
February 5, "	85	4,000,000	80	24,000
" 18, "	90	4,360,000	..	10,900

Under full doses of arsenic and sulfate of iron the number of red blood-corpuscles has increased from 886,000, on September 22d, to 4,360,000 on February 18th. He presents every aspect of being cured, although the possibility of a fatal relapse is always to be remembered in this disease.

The fourth case is also one of pernicious anemia, the patient being temporarily better, but not so markedly so. S. S. D., aged sixty-one, consulted me January 30, 1895, stating that for two months he had not been feeling well. His stomach and bowels were out of order, and his fingers and feet were cold, but he did not cough. There was no mucus in his stools, and his sleep was not disturbed. An examination of his urine gave negative results. This condition of general debility improved under treatment, and I did not see him again until the twenty-fifth of the following October, an interval of nearly nine months, when he came back complaining of slight debility. I saw him again on March 17, 1896, when he complained of gastric disturbance, for which I gave him condurango. I noticed that his face was a little drawn to the right side and that he was markedly anemic in appearance, but he stated that he had always had this chalky color and was naturally pale. Ten days later he was somewhat better, and on June 25th he reported himself as being very much improved. I did not see him again until November 12, 1896, at which time he presented himself in a condition of very advanced anemia. There was a faint mitral systolic murmur, some dyspnea on exertion; and his fingers were a little blue. His urine analysis was

negative. Three weeks later he came to my office again complaining of very great shortness of breath, the dyspnea being so marked as to seriously incommod his movements. At this time an examination of his blood gave the following results: Hemoglobin, thirty per cent.; corpuscles, volume, twenty-five per cent.; number, 1,332,000; leucocytes, 5000; lymphocytes, ten per cent.; mononuclear leucocytes, thirty per cent.; polynuclear leucocytes, fifty-five per cent.; eosinophiles, five per cent. The blood also showed marked poikilocytosis, and microcytes, and macrocytes were present, the latter being very large. There were also numerous normoblasts and gigantoblasts. Macroscopically, the appearance of the blood was slightly paler than normal. It was quite thin and did not coagulate readily.

He was immediately put upon peptomanganate of iron and ascending doses of arsenic. Ten days later the dyspnea was still present, but his sleep was better. I then ordered for him a wineglassful of maltale twice a day. His blood count at this time showed: Hemoglobin, twenty-eight per cent.; red corpuscles, volume, thirty per cent.; number, 1,060,000; white cells, 8000; lymphocytes, sixteen per cent.; mononuclear cells, twenty-five per cent.; polynuclear cells, fifty-nine per cent.; eosinophiles, none. The difference in the count and in the results from the hematokrit seemed to be caused by the megalocytes; otherwise, the condition of the blood was practically the same as at the previous examination in regard to poikilocytes, microcytes, and megalocytes.

On January 23d, the patient expressed himself as feeling much better, and he looked much better. At this time the hemoglobin was 35 per cent.; red corpuscles, volume, 33 per cent.; number, 1,520,000; white cells, 6000; lymphocytes, 16 per cent.; mononuclear cells, 32 per cent.; polynuclear cells, 52 per cent.; no eosinophiles. There were only a few poikilocytes and megalocytes. It is noted the blood showed a marked improvement over previous examinations.

On January 6th, 1897, the examination resulted as follows: Hemoglobin, 37 per cent.; red cells, volume, 42 per cent.; number, 2,212,000; leucocytes, 6300; lymphocytes, 20 per cent.; mononuclear cells, 16 per cent.; polynuclear cells, 60 per cent.; eosinophiles, 4 per cent. Microscopic examination revealed a few microcytes and macrocytes, and only an occasional poikilocyte.

On February 2, 1897, he reported that he had gained eight pounds since December 1st. The liver and spleen are still normal in size, the appetite is good, and the bowels regular. He sleeps well, does not cough, and there is much less shortness of breath. He has taken the maltale regularly, but during his entire illness has never been able to take more than six to eight drops of Fowler's solution of arsenic a day, with pepto-mangan, without developing gastric irritability. He has had massage twice a week for six weeks. An examination of his blood at this date showed: Hemoglobin, 45 percent.; red cells, 2,400,000; volume, 46 per cent.; leucocytes, 10,000; lymphocytes, 5 per cent.; mononuclear cells, 25 per cent.; neutrophile cells, 70 per cent.; eosinophiles, 5 per cent.

Microscopic examination shows a few poikilocytes and microcytes.

On February 24, 1897, he reported that he was improving in every way. An examination of his blood gave the following results: Hemoglobin, 35 per cent.; erythrocytes, 2,250,000; leucocytes, 12,500. A few microcytes, rather numerous macrocytes, and a considerable number of poikilocytes were present. This case showed marked improvement on active hematic treatment. Whether the improvement will persist remains to be seen.

The fifth case, also one of pernicious anemia, is that of F. L., born in Pennsylvania, aged forty-four years, a carpenter by occupation. He was admitted to the Jefferson College Hospital with the following history: His father died of alcoholism. His mother had some nervous affection. His brothers and sisters are all living, and healthy, in his opinion, but cross examination showed that one sister was decidedly pale, and had white patches on the skin such as he had. The patient had the ordinary diseases of childhood, and malarial fever eleven years ago, which lasted six months. Otherwise he has always been strong and healthy until four years ago, when he began to suffer from weakness, but was not confined to bed. He has never lost flesh, does not cough, or have sweats, and has no alcoholic or specific history. The appetite was good, the bowels slightly constipated. The urine had a specific gravity of 1018, was acid in reaction, and did not contain albumin or sugar. The blood examination on March 15, 1895, showed hemoglobin, 17 per cent., and red corpuscles, 1,340,000. The red blood-corpuscles showed slight poikilocytosis, and there were megalocytes and microcytes in considerable number. Only about 5 per cent. of the red corpuscles were normal. The white blood-corpuscles were normal and there were no malarial organisms. Inspection showed a well-nourished man, intensely pale, the pallor being of rather a yellowish hue, the subcutaneous tissues were well filled with fat. The heart and lungs were normal, except that the heart sounds were feeble. The spleen was not enlarged, and the liver dulness was normal. There was no abdominal disease, but deep palpation in the area proper for the head of the pancreas revealed the presence of a small swelling. He was placed upon ascending doses of Fowler's solution of arsenic and reduced iron, three times a day, the latter being given in ascending half-grain doses.

On March 26, 1895, the hemoglobin was 10 per cent., and the red blood-corpuscles numbered 760,000 to the cubic millimeter. On the 29th, the hemoglobin was 10 per cent., and the red blood-corpuscles, 548,000. On April 1st, the hemoglobin was 8 per cent.; the red blood corpuscles, 520,000. On April 5th, the hemoglobin was 8 per cent.; the red blood-corpuscles, 454,000.

The patient died on April 6th. The *post-mortem* showed well-marked rigor mortis, abundant subcutaneous fat, muscles well preserved and very red in color. The bone marrow was chocolate-colored. There was a small, clear effusion in the right pleural cavity. The left pleura was universally adherent and the cavity contained six ounces of clear fluid. The pericardium contained six ounces of clear fluid. The right ventricle was flabby and

relaxed, the left being firm and contracted. There were no clots in either ventricle or in the vena cava. A large chicken-fat clot was found in the pulmonary artery. The aortic valves were patent; the mitral valves were slightly thickened. The cardiac muscle was pale, flabby, soft, and cloudy. The pericardial fat showed a tendency to invade the heart muscle. The aorta was pale and unusually soft and elastic, and was pared both longitudinally and transversely with little difficulty. The heart weighed fourteen ounces. The right lung showed extensive gelatinous edema. The peribronchial glands were pigmented and a few of them were calcareous. The bronchi were normal.

The sixth case resulted in recovery, although it was apparently one of pernicious anemia. J. D., aged forty-four, a coal-miner, was admitted to the Jefferson College Hospital January 31, 1895. His father died of enteric fever. His mother was living and well. He had the ordinary diseases of childhood and had always been healthy until three years before, when he began to have a sensation of numbness in his fingers. Four months before he had noticed a similar numbness in the feet and legs, with a sensation of fulness in the stomach and a chilly sensation in the lumbar region. He was markedly anemic. His urine had a specific gravity of 1020, and was acid in reaction, but did not contain albumin or sugar.

On March 13, 1895, an examination of his blood showed poikilocytosis, the corpuscles varying very much in shape. There were numerous macrocytes and microcytes. There was a slight diminution in the number of white blood-corpuscles. The hemoglobin was forty-five per cent., and the red blood-corpuscles numbered 2,500,000. He was given ascending doses of Fowler's solution of arsenic with half a grain of Quevenne's iron, three times a day. On March 30th, the hemoglobin was fifty-eight per cent., and the red corpuscles 3,320,000, with very few poikilocytes. April 12th, the hemoglobin was eighty per cent., the red corpuscles, 4,060,000. April 23d, the hemoglobin was eighty per cent., red corpuscles, 4,400,000. The hematokrit gave ninety-four volume per cent.

I have reported these cases because it seemed to me that each of them possesses considerable clinical interest. The first case shows a very great improvement, and a decrease in his white cells to an interesting degree. The second case, as already pointed out, shows a great increase in lymphocytes, yet no actual increase in white cells, so resembling lymphatic leukemia, and yet not following its usual blood count. The third, that of pernicious anemia, is certainly interesting as manifesting an apparent cure, and certainly a great improvement, although clinical experience shows that a fatal relapse will probably ensue. The fourth also shows a very great improvement, sufficient to justify hopes of cure if the patient has not already come to a standstill. Unfortunately we know too well the fatal history of most cases of pernicious anemia. The fifth presents an instance in which the disease pursued a rather rapid and fatal course, with every characteristic, both *ante-* and *post-mortem*. Finally, the

sixth case, like the third and fourth cases, illustrates how a patient apparently in the early stages of pernicious anemia can either be cured or the disease arrested, although, as it is a hospital case, I cannot vouch for his permanent recovery.

In conclusion, I desire to thank Dr. A. H. Stewart for the various blood counts recorded in this paper.

MEDICAL PROGRESS.

Treatment of Gunshot Wounds of the Head.—In 38 cases of gunshot wound of the cranium treated in Bardeleben's clinic, TILMANN says (*Deutsche Mil. Zeitschrift*, 1896, Hft. 1) that the following results were obtained: Out of the whole number, 21, or 55 per cent., recovered; of the 16 in which penetration into the cranial cavity could not be ascertained, all recovered; of the 22 in which the ball had entered the cranial cavity, 5 recovered, or about 23 per cent. Almost identical results were obtained in the 197 cases of gunshot wound of the cranium, which is the entire number of these cases so far treated in the clinic: Eighty-three (42.1 per cent.) died; 114 (57.8 per cent.) recovered; of the 72 non-perforating wounds, but 1 died; of the 125 in which penetration had taken place, 82 (65.6 per cent.) died; 34.4 per cent. ended in recovery. The sixteen in which there was no penetration of the ball were treated simply by a thorough cleansing of the wounded area, wiping out of the wound with dry balls of gauze, and covering it with iodoform, or sterilized gauze, and encasing all with a little cotton and collodion. In two cases in which there was hemorrhage the superficial temporal arteries had to be ligated. The wounds healed within two or four weeks without fever. In one case the wound remained patent, and in one case the flattened ball, which remained embedded, was cut out after complete cicatrization.

Six out of the twenty-two cases in which the ball had penetrated were brought in unconscious and died within six hours. On *post-mortem* there was found to be a slight comminution of the part where the ball had entered with fine fissures about one centimeter in length radiating from the wound of entrance; in one case fine chips of bone were found to be embedded to the depth of five centimeters in the substance of the brain. Three of the six cases that were brought in unconscious were bleeding from the temporal artery, the ligation of which was accompanied by the oozing of brain substance with clotted blood; these died within twenty-four hours. In five cases the middle meningeal artery was wounded; and in two of these cases the first clue to the involvement of the middle meningeal was paralysis on the opposite side of the body, appearing first in from five to thirty-one hours, and inducing death before an operation could be undertaken. In three other cases the primary trephining, with ligation of the artery, was undertaken, without success, however. Death was due in one case to secondary hemorrhage, which took place on the ninth day, just as the bandage was being changed. Of the other cases one patient died of meningitis, and another succumbed to a severe

hemorrhage into the cavities of the brain. In seven cases secondary trephining was performed; in two of them, after twelve hours, because of the development of paralysis (one recovery); in three other cases, on account of fever, operation was performed after three days (two succumbed to meningitis purulenta, one recovered); and in one case after two, and in another after nine days, for removal of the impacted ball (both recovered).

Primary trephining is indicated when there is considerable arterial hemorrhage, and if symptoms of lateral paralysis or spasms are present. Later, this operation may be indicated when fever develops with lateral paralyses, and also when the presence of the ball in the wound has been ascertained. Otherwise it is better to wait; for, as a rule, the removal of the chips of bone will be impossible. Under this latter treatment, in five cases in which the ball had penetrated both tables of the skull, five recovered, one even without any operation. The most serious symptom is continued unconsciousness.

Gonorrhœal Endocarditis.—A case of endocarditis due to gonorrhea came under the observation of MICHAELIS. A man, twenty-five years of age, in the third week of an attack of acute gonorrhea, was seized with severe rheumatic pains in the finger joints. The metacarpal-phalangeal joints of the third and fourth fingers became much swollen; temperature, 102.4° F. After a few days a scraping, systolic murmur was heard in the aortic region, and on the twelfth day after admission to the hospital, the patient with but a moderate fever succumbed to a fatal syncope. On section a verrucose mass about the size of a hazel nut was found attached to the aortic valve, and beneath this was a rupture. Microscopic and bacteriologic examinations revealed the presence of gonococci. (*Zeit f. Klin. Med.*, 1896, Bd. 29.)

Treatment of Chronic Empyema by Decortication of the Lung.—DELORME (*Gazette Hebdom. de Med. et de Chir.*, No. 95, p. 1129) reports nineteen cases of chronic empyema of from six months' to eleven years' duration, in nine of which the above-mentioned procedure effected either an entire obliteration of the cavity or greatly increased pulmonary expansion. Failure resulted from pulmonary tuberculosis, either unrecognized or following an otherwise successful operation, or from inability to detach the fibrinous covering of the lung.

The cavity should be disinfected for several days before the operation. No special instruments are needed. Those used should be long and blunt. Most of the work can be done with the fingers. The presence of adhesions should be determined before opening the chest-wall, and to avoid shock the operation should be as rapid as possible, and the region of the pericardium and diaphragm avoided. Care should be taken not to penetrate the lung in the first incision through the membrane. Should this occur, a fresh incision should be made. Hemorrhage is slight, when neither parenchyma or visceral pleura is wounded.

In the after-treatment, exercise and pulmonary gymnastics are advisable. When decortication is impossible, the operation must be abandoned, and that of Estlander or Schede substituted.

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SATURDAY, MARCH 27, 1897.

**THE EFFECT OF DIET AND STARVATION
IN MICROBIC POISONING.**

The old saw, "Starve a fever," finds justification in a report made to the Paris Academy of Sciences by Teissier and Guinard, February 15th. As a result of their experiments these gentlemen claim that complete or partial abstinence from food lessens the effects of toxins. Dogs were the subject of their experiments, and the pneumobacillus and the diphtheria bacillus were the germs employed. Twenty-two animals were subjected, while in a starving condition, to injections of toxin in amounts which invariably killed the control animals. Four of these recovered, and in those which died the intestinal lesions and those of the liver and spleen were less marked in the starving animals than in those which had received food. To obtain this increased power of resistance against the poison it is necessary that the animal should suffer lack of food for some time. If the starvation diet has continued only five or six days, and if, owing to surplus fat, the animal is able to resist the effect of starvation, he falls a prey to the toxin as readily as an animal receiving food.

Two hypotheses have been advanced to explain this interesting phenomenon. One presupposes that the cellular elements of the body being starved, as it

were, are ready to seize upon and assimilate whatever is presented to them, and that they destroy the toxins before they have time to act. According to the other hypothesis, the toxins act slowly or not at all, because the organism in its starving condition does not supply the elements whose presence is essential for the production of the active poisons. The second hypothesis seems to the investigators to be the better explanation.

SOME FURTHER CONSIDERATIONS OF HOSPITAL AND DISPENSARY ABUSES.

MASQUERADE in the garb of charity, the aim of most hospitals is to attract large numbers of paying and curable patients. A fair pecuniary return for services and a low death-rate make the sleek philanthropist rub his hands in glee.

The real autocrat of the hospital is the superintendent. However kind-hearted he may be by nature, he is so fettered by rules that, to secure admission, an ability to pay on the part of the patient becomes the prime requisite, real need a secondary consideration. The admitting physician gives to the financial status of the patient no attention, and to his real need, little. He is looking for quickly curable cases that his service may be full and brisk and his death-rate low. Between the two, *viz.*, the automaton of adamantine charity and the man of science, God help the poor man who is almost moribund or a chronic and uninteresting invalid!

In various ways, subjected to no real discrimination, about 75,000 people yearly avail themselves of nearly gratuitous medical and surgical attendance, medicine, surgical dressings, nursing, board, lodging, and washing in the hospitals of New York City.

The prime idea of managers of dispensaries is to report yearly the greatest possible number of patients treated, prescriptions filled, and visits made by their district physicians. Largely dependent for support, as most of them are, upon voluntary contributions, the more show they make of their indiscriminate giving, the more money will they receive. It naturally follows that in less than half our dispensaries only a mere pretense of inquiry is made into the real necessity of the patient. In almost none are adequate measures employed to detect and prevent fraud. In few, if any, is the doctor vested with any discretionary power. Thus rich and poor

alike find welcome shelter under, not as they would like to think, the ample cloak of charity, but what really is the pall of self-respect and the shroud of honor.

What does the vainglorious Charity King care if the sick, by subterfuge and deceit, and with his connivance and assistance, cheat the poor doctor of his modest dues? Will not the patient, by this crime, have more money with which to buy of the Charity King his high-priced coal and gas, his flour and sugar, and be readier with the exorbitant rent for his unsanitary and stuffy rooms? As long as he has his own servile physician at his beck and call, what does he care for the rank and file of the profession? For the meek and devoted physician, whom he makes give away his brains at his pet dispensary, he has no more respect than for his butler or coachman; and why should he? Does he not remember how this same man struggled, nay, grovelled, for the appointment? How he has for years willingly worked for his own impoverishment and debasement? How, when that has been effected and he has died in the harness poor and devoid of self-respect, a hundred other men have fallen over each other in their eagerness to wear the shackles? Why should we look for respect when our own self-respect falls so low? Why grumble when the Charity King, to intensify the fulgence of the benevolent halo surrounding his emphysematous head, gives freely what are not his, our brains and very life!

Hospital and dispensary managers are disinclined to allow the physicians any credit for the institutions' benefactions. They unanimously claim that the physician is fully paid for his services, if not in money, by professional experience thus gained. Does not the physician tacitly acknowledge this compensation by his eagerness to secure the position and year after year do the work uncomplainingly? Stripped thus of his only glory (for how many dispensary physicians will acknowledge themselves actuated in their work by charity alone), the tool of professional philanthropists, he is compelled by his misguided policy to prostitute his profession, to give his brains to the undeserving, to take the very bread from his own and his brother's mouth, and dig his own material grave. What bosh to talk about respect or self-respect or to complain of being treated like a chattel! Haughty Pharisees hoisted aloft by gifts not theirs

and servile physicians patient at their suicidal work —what a sight is that! And yet it is at our very doors, under our very eyes.

And the clinics? What of them? They are the most flagrant offenders of all! At our nine medical schools there are some two hundred clinical professors, lecturers, and instructors, who must have clinical material at any price, and in any way. It comes from hospital wards, from dispensaries, from their own practice, from their neighbors' practice. If not in town, from out of town. In the sharp competition, a rare case is welcomed though in affluent circumstances; interesting cases are sought out and treated gratuitously, even if well-to-do, while the uninteresting pauper is neglected or referred to a dispensary. Well-to-do patients are sent by country and city doctors to clinics to get skilled advice free, when they can well pay moderate fees. Patients themselves, by their own intuition, come to clinics for the free opinion of the "Professor," and perhaps for free treatment, and generally get both, although in comfortable circumstances.

Patients come from country and city to consult distinguished specialists who, instead of turning them over to younger, less renowned men when they find they cannot pay large fees, relegate them to their clinics where they get advice and treatment gratis.

Thus in hospital, dispensary, and clinic the baneful dance goes on until medical charity has become a disgrace and medical honor a byword. Looking beneath the surface, aside from its medical aspect, this craze for getting something for nothing, allowed by us who lose, encouraged by those who lose nothing, betokens a state of social and moral rottenness truly appalling.

Is there no remedy? Appeal to the public would be useless, as long tolerance and encouragement have led it to regard gratuitous medical attendance as its right. Appeal to the Charity Kings would be futile, as long years of servility on our part makes protest impertinence. Unanimous, persistent, and concerted action on the part of physicians is unknown and impossible, so thoroughly is our professional structure undermined by servility and selfishness. The rising generation of physicians will not help us, trained, as they are by precept and example, to lax ethics and commercial ways. Some ray of hope might come from future students if, by example

and by plain, honest, undergraduate instruction, the hardships, trials, temptations, and possible triumphs of professional life were depicted to them and they were shown the necessity of attaining and holding to a high ideal as alone conducive to lasting contentment and self-respect.

If we turn in our despair to official organizers of charity we see them thrown into spasms of virtuous indignation at the distribution of a few loaves and fishes by a sensational newspaper and the temporary housing of a few vagrants, during a freezing blizzard, by an organization of Christian workers. Such antics are amusing to us who, for twenty years, have seen unchecked pauperization attain gigantic proportions under their very noses. Their affectation of infallibility in dispensing charity may please themselves but does not deceive others. Their claim, that indiscriminate giving is degrading and should be stopped, is right, but why should they pounce with such furor upon a single kindly, but perhaps unwise, act of unorganized chafity, while conniving at the daily misdemeanors of organized charity? Why champion the cause of butchers, bakers, and lodging-house keepers and ignore the depredations inflicted upon a learned and bevolent profession.

No sane person would admit that, in 1893, one-third of our population, 1,800,000, were paupers. Yet, in that year, our city dispensaries treated 680,789 patients. That a large number of these recipients were unworthy does not ruffle organized charity in the least, but, had the donations been food or shelter instead of doctors' brains, what a mighty howl would have gone up.

Indiscriminate giving is degrading and demoralizing to the recipient, and its unchecked growth foreshadows a social plight from which all right-minded citizens should recoil with horror. Instead, therefore, of straining at gnats, let charity organizers at once attack and abolish an evil most pregnant with danger to good citizenship.

No institution should be allowed to give alms, whether food, fuel, shelter, or others' brains, unless it is in position to prove, in each individual case, that the recipient is worthy. That would mean the employment of a detective force commensurate with its sphere of action. That requirement and a full accountability for indiscriminate and improper alms-giving would do more to restore and preserve an

honest and self-respecting citizenship than anything else, and should be speedily embodied in some legal enactment.

Meanwhile there is something that even the humblest member of the profession can do to mitigate the present deplorable state of affairs. He can treat poor patients gratis at his office, and patients with very moderate means for what they can afford to pay, however small the fee. Thus will his professional self-respect be retained. Then will his charity be true charity and his consideration will be rewarded by the gratitude of patients not yet calloused by beggary nor debased by imposture. In this quiet way some inroads could be made upon this great injustice to the profession and evil to the community. The more sweeping measure, as has been previously suggested in the News, would be to cut off the revenue of the dispensaries by withholding city aid, and make it an illegal act for any dispensary to accept money from a patient.

ECHOES AND NEWS.

The Louisiana State Board of Health.—This Board has announced that it will supply antidiphtheritic serum to poor patients free of cost.

The Willard Parker State Hospital.—William L. Russell of Bay Shore has been appointed first assistant physician in the Willard Parker State Hospital at a salary of \$2000.

A Nurses' Home in Worcester, Mass.—Mr. Edward C. Thayer, of Keene, N. H., has offered to erect, at an expense of not less than \$35,000, a home for the nurses employed in the City Hospital in Worcester, Mass.

Fined in Philadelphia for Expectorating.—One passenger has been arrested and fined \$5 in Philadelphia for persistently spitting on the floor of a street car in that city, though requested by the conductor several times to cease doing so.

Concentration of Doctors' Offices.—Denver, Col., is to have a building 125 feet long by 50 feet deep and two stories high, to be devoted exclusively to doctors' offices. Twenty physicians can be accommodated, and there will be a common operating-room fitted up in the most approved manner.

The Mecca Pilgrimages.—The Government of India has taken the proper course of forbidding all pilgrimages to Mecca from India for a year. The announcement to this effect was officially made to the recent Sanitary Conference at Venice. The French Government has also prohibited pilgrimages in Algeria and Tunis.

A Remarkable Case of Mercurial Poisoning.—A case is reported from Germany in which a thermometer sus-

pended over a heated stove burst, and the mercury, falling on the hot surface, became vaporized and poisoned two children who were sleeping in the room. They eventually recovered.—*Med. Press.*

The New York School Inspectors.—The 150 medical inspectors of schools have been appointed. Forty-one of the doctors are men who have served on the summer corps. Only three physicians who passed the civil-service examination have declined. One successful man is a negro, who will be assigned to the one school that is devoted exclusively to colored children.

The Hoagland Laboratory.—This *quasi* post-graduate school of Brooklyn announces its annual courses in pathology and bacteriology for the months of April and May. Drs. J. M. Van Cott and E. H. Wilson are the directors in those departments of the Laboratory. Dr. J. H. Raymond, secretary, should receive applications.

Marking of Oysters.—A discussion took place in the House of Commons last week regarding the question of oysters and disease. It was stated that the demand for oysters in England has fallen off by three-fourths. A resolution was introduced declaring that the selling of oysters brought from foreign layings, without declaring their origin at the time of sale and without plainly marking such origin, be a penal offence.

New York Board of Medical Examiners.—Drs. William Warren Potter of Buffalo, Maurice J. Lewis of New York, and William S. Ely of Rochester have been appointed their own successors on the State Board of Medical Examiners, representing the Medical Society of the State of New York. Drs. James Willis Candee of Syracuse, John Mallory Lee of Rochester, and Asa S. Couch of Fredonia were similarly reappointed on the board representing the Homeopathic Medical Society.

Superintendents of Hospitals for Infectious Diseases.—The old writers had a word of Greek origin which they found convenient as a designation for medical men and nurses who took charge of patients having infective maladies; the original of the term being *παραβολος*, venturesome. For modern uses it may become convenient to shorten up some of the long-winded designations or titles that are applied to our contagious *confrères*, and term them our parabolanic physicians.

Tuberculosis Among the Negroes.—The South Carolina State Board of Health at its recent meeting decided to issue a circular to all colored teachers explaining the ravages of consumption among the colored population, and showing that the most fruitful cause of the spread of this disease was the habit of expectoration by consumptives on the floors of school buildings and elsewhere. The teachers will be warned and urged to take every precaution possible to prevent the further spread of the disease from this cause.

Mütter Lectureship of the College of Physicians of Philadelphia.—The next course of ten lectures instituted by the late Professor Thomas Dent Mütter, M.D., LL.D., on

“Some Point or Points in Surgical Pathology,” will be delivered in the winter of 1899–1900 before the College of Physicians of Philadelphia. The compensation is \$600. The appointment is open to the profession at large. Applications stating in full the subjects of proposed lectures must be made before October 1, 1897, to Committee on Mütter Museum, John H. Brinton, M.D., Chairman, northeast corner Thirteenth and Locust streets, Philadelphia, Pa.

Charles James Fye, M.D.—An English naval surgeon, was killed during the expedition of the British against the bloodthirsty king of Benin. He was surgeon to the “St. George,” man-of-war, and was in the act of caring for a wounded officer of marines when he was shot dead by the enemy. He was a young officer, and had been only four years in the service. The *British Medical Journal* does not fail to remind its readers that he and his surgical comrades are rated as “non-combatants”—praised as “brave civilians” when they fall on the field of battle—but are accorded none of that official recognition which they have been for years urging the government to grant.

An Epidemic of Trachoma.—Eastern and Western Prussia, Posen, and Silesia have recently been visited by an epidemic of trachoma, and the cases are very numerous, especially in some districts near the Russian frontier, where the general standard of living is low. The reports of the medical officers of health show that in the district of Johannesburg there are 2343 patients, and in the district of Lyek 3913, of whom 994 are in the town of Lyek, the remainder being in the country. Experts are to be appointed by the Government to travel through the infected districts and to attend the poor in conjunction with the local medical men.—*London Lancet.*

Free Training in Experimental Physiology.—Exceptional opportunities for training in physiology are presented by the Department of Physiology in the Harvard Medical School, Boston, which offers positions for four qualified men without charge. The explanatory circular may be had of Prof. Henry P. Bowditch at the school. Applicants must possess an elementary knowledge of physiology, and a sufficient training in one or more of the biological sciences. The chosen candidates “will give the mornings of the collegiate year to research, and the afternoons to the direction of undergraduate students in experimental physiology, under the supervision of a professor in the department.”

A Scandal at Monsignor Kneipp's Water-cure.—According to the *British Medical Journal*, February 29, a scandalous state of things in the management of Pfarrer Kneipp's establishment at Wörishofen has been disclosed by a lawsuit brought against one of the male nurses there by the parents of a former patient. The patient, it appears, was a weak-minded young girl with a leaning to nymphomania. She had previously been placed in an asylum, but her parents had removed her from it and brought her to Kneipp's establishment, “confiding in the sanctity of the place.” It seems almost

incredible that the night nurse allotted to this poor half-witted creature was a young man; yet such is the fact. For eight or nine nights she was left alone with him, until one night, when he apparently ill-treated her, her screams brought in another male nurse, to whom the first one then resigned his charge. After some months the poor girl left Wörishofen, and in due time gave birth to a child.

A Druggist Prosecuted for Substitution.—Fairchild Bros. & Foster have taken action in the Court of Chancery of New Jersey, against Chas. Holzauer, a druggist of Newark, for fraudulently dispensing some preparation not Fairchild's, when Fairchild's Essence of Pepsin was specified. These preparations so dispensed and sold as and for Fairchild's Essence of Pepsin differed materially in chemical composition and physical properties from the latter, and also contained salicylic acid. The motion for injunction was granted without any defense on the part of Holzauer. This action against substitution must receive the cordial endorsement of the entire medical and pharmaceutical profession, and we have reason to believe it is equally satisfactory to all honest druggists. The best class of druggists deplore this evil, and would welcome any general and decisive effort to rid the trade of it, for they realize that this practice is one which is prejudicial to the best interests of the drug trade in every way; and furthermore, the honest druggist naturally recognizes in this practice an illegitimate and fraudulent competition, while the wrong to the physician and the public cannot be overestimated.

An Antivivisectionist.—That eminent scientist and widely recognized authority on the theory, practice, and aim of surgery, Mr. Jerome K. Jerome, is an ardent foe of vivisection. In *To-day*, his own London weekly, he says: "If two phrases occurred to me, one of which would not give offense to the vivisectionists, and of one which would, I should unhesitatingly choose the latter. I do all I can to help to create among the public a growing horror and detestation of vivisection, and of those who support and advocate vivisection." The first sentence is more than a bit shaky as regards the structure of its anti-thesis, but that is too small a matter to notice, as Mr. Jerome is not quite so eminent as a literary man as he is in the other ways mentioned. What really deserves attention is the mistake he will make by an intentional resort to cruelty to vivisectionists. Can he not see that the shrieks and quiverings of creatures, even so abhorrent as they, will grievously shock some observers and irremediably brutalize many others? Whether he hurts them with a scalpel or his grammar the result will be the same, and he will hinder, not advance, the good cause to which he is devoted.—*N. Y. Times*.

The Bubonic Bacillus in America.—The bacillus of the bubonic plague has been subjected to experimental examination by Dr. E. H. Wilson, Chief of the Bureau of Bacteriology in the Brooklyn Health Department. The practical purpose of the study was to see what should be done to protect this port from infection through goods imported from India, but the scientific value of the results consists in the addition to the limited information among

scientists as to the nature of the bacillus. Conclusions: (1) The thermal death point of this organism is one or two degrees higher than that of the majority of pathogenic bacteria of the non-aperulating variety. (2) Differing widely from cholera, sunlight and desiccation cannot be relied upon to limit the viability of this bacillus under commercial circumstances. (3) Rags, mails, ballast, and general merchandise coming from infected ports should be subjected at either the port of departure or the port of entry to a thorough system of disinfection. Experiments in regard to the effects of chemical disinfectants have been made in the laboratory only with carbolic acid. It has been found that an exposure for two hours to a one-per-cent. solution of carbolic acid sufficed to destroy the life of the bacillus.

The Academy of Medicine and the New Charter.—At the meeting of the Academy of Medicine the report of the committee appointed to investigate the subject of the Health Department in the charter of the Greater New York was presented. It is signed by Drs. Edward G. Janeway, President of the Academy; Stephen Smith, Joseph D. Bryant, George G. Wheelock, and Prince A. Morrow, secretary. The report said, the committee was not inclined to advise a change in the charter in regard to extraordinary powers, which were sometimes necessary. Should occasion arise, public opinion would take from the board its authority. Moreover, the Academy should and would be the first to demand such action. The committee suggested only such changes as relate to the discrimination made against physicians in the appointment of the President of the Board of Health and the abolition of the Coroner's office in favor of a modification of the Massachusetts system. They asked that the Board of Health consist of three Commissioners, appointed by the Mayor, two of whom shall be practicing physicians of not less than ten years' standing; that the third Commissioner be a reputable citizen; that the Health Officer of the Port be *ex officio* a member. Some opposition was made to immediate adoption, and the report went over until the next meeting.

Obituary.—Dr. Clark Wright died March 16th at his home in New York, in the thirty-eighth year of his age. Dr. Wright, son of the late Dr. Clark Wright, was born in this city, and was graduated from Yale College. He studied medicine at the College of Physicians and Surgeons of New York, and completed his studies in London and Germany, remaining abroad several years. He was connected with the Roosevelt Hospital Out-Patient Clinic, and had established a considerable practice. He leaves a wife and one little daughter.—Dr. Arnold Scott of Philadelphia, aged sixty-nine years, died March 18th, on a street car, of heart failure. He was born in Wetzler, Germany, and his ancestors were associated closely with the historic characters of the empire. As lieutenant he served with distinction in the rebellion of 1848, when Southern Germany struggled for supremacy against the Northern States. He studied medicine in Germany and came to this country in 1866.—Dr. Abel Wares, of Haverhill, Mass., died March 15th, aged sixty-nine years.

He was Grand Treasurer of the Supreme Order of the United Order of the Golden Cross of Massachusetts. He leaves a wife and a son.—Dr. James Etheridge died at Macon, Ga., March 14th, just as the surgeons were about to operate on him. They examined him before he was placed on the table, and they decided that he could take an anesthetic. Almost at the very instant it was applied he expired. A *post-mortem* showed that death was caused by paralysis. Dr. Etheridge was a prominent physician of Macon.

CORRESPONDENCE.

EXPECTORATION ORDINANCE AT SARANAC LAKE.

To the Editor of THE MEDICAL NEWS.

DEAR SIR: I herewith inclose copy of "Ordinance Concerning Expectoration," adopted by our Board some months ago:

"SECTION 1.—All persons who expectorate in consequence of any disease of the air passages (lungs, throat, mouth, or nose), are positively forbidden to spit or discharge such expectorated matter upon the floor of any house, store, church, schoolhouse, or upon any sidewalk, or in any dooryard, or other place where such matter may be the means of communicating disease to other persons.

"SECTION 2.—Any person who shall violate the first section of this ordinance shall be liable to a penalty not exceeding \$5 for the first offence, nor more than \$25 for a subsequent offense, which penalty shall be imposed by and at the discretion of the Board of Health.

"NOTE.—Hotels, inns, and boarding-houses should provide suitable cuspidors for the accommodation of their guests. Cuspidors should be thoroughly cleansed and disinfected daily, and should contain a small amount of germicide solution.

"Persons who have occasion to expectorate when on the streets should carry small pieces of cheesecloth, which, after being used, must be preserved, and burned with as little delay as possible. Chinese paper napkins or toilet paper will answer a similar purpose. The casting of any of these aside, after use, where they may affect others, will be regarded as a violation of the ordinance.

"CAUTION.—Handkerchiefs should never be used to receive expectorated matter. If so used, they must be boiled, or soaked in a germicide solution, with as little delay as possible, and never be put with other articles to be laundried."

This ordinance is vigorously sustained by our people. Of course, with newcomers we have to do missionary work, but a notice usually brings the transgressors to a sense of duty, with a promise to obey in future.

Your recent editorial and reference to Dr. Trudeau's work was admirable and very gratifying to us here. This is a great work of education. Nothing can be accomplished except by persistent and untiring work.

Yours very truly,
E. S. McCLELLAN,
Pres. Board of Health.

SARANAC LAKE, N.Y.,
March 18, 1897.

OUR PHILADELPHIA LETTER.

[From our Special Correspondent.]

THE WIDAL-GRUNBAUM SERUM-TEST BY THE BOARD OF HEALTH—ANTISTREPTOCOCCIC SERUM IN SEPTIC CONDITIONS—MEETING OF THE SECTION IN GENERAL MEDICINE OF THE COLLEGE OF PHYSICIANS—FOOD AND DRINK ADULTERATION—NEW SITE FOR THE MUNICIPAL HOSPITAL—DR. S. WEIR MITCHELL—POPULAR LECTURES AT THE POLYCLINIC.

PHILADELPHIA, March 20, 1897.

IN order to test the practical usefulness of the Widal-Grunbaum serum test in cases of enteric fever, the Philadelphia Board of Health has offered the services of the Bacteriologic Laboratory to examine and report on samples of dried blood from suspected cases of this disease received from the physicians of this city. A circular letter to this effect, together with a card of instructions and outfit for collecting the blood sample, was sent to the profession generally on the nineteenth instant. In view of the fact that the test is still in an experimental stage, explicit information is desired from those sending samples as to the course of the disease, as well as to any discrepancy between the result of the laboratory diagnosis and the clinical aspects of the case in question.

The treatment of septic conditions by the use of anti-streptococcic serum was thoroughly discussed at a meeting of the Section on Gynecology of the College of Physicians devoted to this topic, on the evening of the eighteenth instant. Papers were presented by Dr. Barton C. Hirst, Dr. J. M. Baldy, Dr. G. E. Shoemaker, Dr. R. C. Norris, Dr. E. P. Davis, and Dr. J. B. Shober. Dr. A. C. Abbott, in opening the discussion, traced in an interesting manner the development of serum therapeutics, and outlined the process of manufacture of any given serum for the treatment of a condition due to a given germ. The general attitude of the papers read at this meeting, while not distinctly deprecatory to serum-therapy in septic conditions, left one with the impression that advance must be made both in the preparation of the serum and in our understanding of the cases in which its employment is indicated, before its value as a therapeutic agent shou'd be accepted.

At a meeting of the Section on General Medicine of the College of Physicians, held on the sixteenth instant, Dr. S. S. Kneass exhibited a stained specimen of the serum reaction in enteric fever, and read an instructive paper on this subject, detailing a number of instances in which he had applied the test. Dr. Alfred Stengel, in the discussion which ensued, spoke of a case in which the diagnosis lay between acute miliary tuberculosis and enteric fever, and which gave a negative reaction with the serum test. The negative value of the test was later substantiated in this instance by the *post-mortem* finding of miliary tuberculosis. Another valuable communication read at this meeting was a study of anomalies of the kidney, by Dr. J. C. Wilson, who also showed several specimens illustrating his paper, and exhibited a case bearing upon the subject.

According to the recent report of the chemist of the Health Board, Mr. William C. Robinson, extensive adul-

teration is being practised with regard to many brands of tinned goods now on the market, which, even if not of a distinctly poisonous character, must at least be considered to contain substances of a deleterious nature. To those who favor a certain widely heralded and popular make of beer it may also be a matter of some interest to recollect that with their favorite beverage they likewise consume a not inconsiderable quantity of hydrofluoric acid, added to the beer to prevent fermentation other than alcoholic. Apropos of the latter, a rigid and systematic drink inspection is recommended in the future. Another official report of interest to medical men is that of the Chief Milk Inspector of the city, Mr. Byrnes, who vigorously condemns the custom of serving bottled milk and cream to consumers by the dealers. Bottled milk, he contends, is the best medium by which the germs of such diseases as diphtheria and scarlet fever may be disseminated, and, inasmuch as many of these bottles must find their way into infected dwellings, and are even in some instances taken into the sick-room itself, the custom probably accounts for not a few of the obscure cases of infectious diseases, for which no apparent cause seems to exist.

The absurd proposition, fostered by the committeemen in charge of the subject, to build the new Municipal Hospital on a patch of malarious swamp land fronting the Delaware river, on the outskirts of the city, has fortunately been defeated by the action of the City Council in the matter, so that for the present, at least, there is but little likelihood that this institution will be relegated to the marshes—a location which it would seem was considered by those charged with the duty of selecting a new site for the hospital as quite in keeping with the infectious character of the cases to be treated in the projected hospital. It has been aptly remarked that, in event of the City Council accepting the recommendations of the "Swamp Committee," it would be the plain duty of the Board of Health to promptly board up the new hospital as soon as it was built, and to forbid the reception of patients; and, viewed from the Board's sanitary standpoint, this is precisely the action they might be expected to take.

Dr. S. Weir Mitchell, who has recently sailed for Europe, expects to remain away until the late fall. He will spend some time on the Continent, returning to spend the autumn in the Scottish Highlands, where he has taken a country house. His return is looked for in the latter part of October.

A course of seven lectures on topics of popular interest is announced by the faculty of the Philadelphia Polyclinic. The lectures will be delivered in the college amphitheater, the subjects being as follows: March 24, "Prevention of Consumption and Care of Consumptives," by Dr. S. Solis Cohen; March 26, "Hygiene and the Laws of Health," by Dr. Henry Leffman; March 31, "Surgical Emergencies," by Dr. Thomas S. K. Morton; April 2, "The Roentgen-Ray Apparatus and Skiograph," by Dr. Max J. Stern; April 7, "The Nursing of Fevers," by Dr. Judson Daland; April 9, "Developmental Needs of Children," by Dr. J. Madison Taylor; April 14, "Mother and Child," by Dr. Edward P. Davis. As this series of lec-

tures is intended for popular instruction on medical topics, admission will be free, and the general public is invited to attend.

OUR PARIS LETTER.

[From our Special Correspondent.]

THE PATHOLOGY OF MORVAN'S DISEASE—RANVIER'S STUDIES ON THE CICATRIZATION OF WOUNDS—FRANCK'S OBSERVATIONS ON THE RESULTS OF COMPRESSION OF THE HEART—THE EFFECTS OF POISONS ON THE HEART AND BLOOD-VESSELS—SCIENTIFIC DEMONSTRATIONS POORLY ATTENDED BY THE PROFESSION IN PARIS.

PARIS, February 24, 1897.

At the *séance* of the Société Médicale des Hôpitaux de Paris on February 12th, Marinesco and Jeanselme presented a very interesting contribution to the study of that much-discussed question, the pathology of Morvan's disease. Following the lead of Charcot, it has been the custom here, until quite recently, to regard the disease always as an abortive, incomplete, atypical form of syringomyelia. In the East, especially at Constantinople, the similarity of the symptoms ascribed to Morvan's disease, especially its completely anesthetic mutilating panaris, and the fact that Morvan, in a country district of less than 50,000 inhabitants, found some fourteen cases of it to describe, led them to suspect indigenous but deteriorated forms of leprosy. There where leprosy is so common and its varying characters so familiar, the thought does not seem so strange as it would farther West. Not long ago, Zambuca of Constantinople, found, in what was symptomatically a typical case of Morvan's disease, the cavity in the cord that would be expected in syringomyelia, but he found, in addition, in the broken-down material of the cavity Hansen's lepra bacillus. This attracted a great deal of attention here, and even led to some doubts as to the etiology of even the more typical cases of syringomyelia.

Marinesco reported the careful autopsy of a typical case of Morvan's disease on which Charcot, in 1890, based one of his clinics, while Jeanselme reported the necropsies of two cases of the disease made in Bretagne, where Morvan's original study of the disease was made. Marinesco found the usual lesion of syringomyelia, a cavity in the cord, more or less triangular in shape, in this case, and extending from the sixth cervical to the sixth dorsal roots. The part involved was almost entirely the left posterior horn, the anterior horn being left almost completely intact. The interesting aspect of the pathologic anatomy for Marinesco lies in the fact that lesions of the left posterior horn should give the trophic troubles incident to Morvan's disease, localized entirely in the left hand. The inference is that the medullary lesions of Morvan's disease have their seat in the posterior horns, and that it is here as a consequence that the trophic centers for the integumental and skeletal tissues of the extremities are to be found. A careful bacteriologic investigation did not disclose the presence of bacilli. The cavity in the cord was, as is usual in syringomyelia, the result of a gliomatosis of the perineuryma, the process starting seemingly in the canal and spreading to the posterior horns.

Jeanselme reported that he had not been able to find bacilli in the anesthetic spots either over- or under-pigmented, as they occur in Bretagne, the home of the disease. As Hansen's bacillus is not often found in the trophic lesions of leprosy, however, Jeanselme did not consider that he could base any satisfactory conclusion on his negative results.

I spoke some weeks ago of Ranvier's studies on cicatrization of wounds of the cornea, especially of healing by first intention. With the further development of the subject, Ranvier announces his theory that healing of cutaneous wounds, where suppuration does not intervene, is accomplished by a similar process to that in the cornea. Epithelial cells from the upper cutaneous layers, surrounded by agglutinative material, are forced out partly by the mechanical contraction of the cut tissues, and serve to bridge over in a few hours the gap made by the wound. This new material, if undisturbed, gradually acquires the character of cicatricial tissue though not to the extent that is observed, when, after suppurative or other disturbing processes, there is a real formation of new connective-tissue. In the demonstration of repair of wounds in the cornea, Ranvier shows a set of slides where, with the processes of repair nearly completed, there are scattered here and there in the immediate neighborhood of the wound little islets made up of epithelial cells—the epithelial whorls that are usually said to be so characteristic of epithelioma. Ranvier frankly states that, as for himself, given some of these slides and asked to make a diagnosis of the case from which they were taken, he would almost inevitably conclude that there was present an epitheliomatous process. The microscopic diagnosis of epithelioma, especially in the serious cases of suspected utero-cervical epitheliomata, has been difficult enough without having to face the possibility that surgical manipulations intended to be depletory may have led to the production of cicatrical appearances, that even in perfectly benign cases may simulate all the appearances of malignancy.

On Saturday, February 13th, Professor Francois Franck gave at the Charité, by invitation of Professor Potain, a demonstration of the results of his recent observations on the accidents caused by compression of the heart in the pericardium. In pericardial effusion it is the pressure of the effusion upon the auricles that determines death in the fatal cases. As soon as the pressure of the effusion confined within the pericardium exceeds the venous blood-pressure tending to drive the blood into the auricles, death is inevitable. Three external factors delay the fatal result in practice: (1) As the pressure increases upon the auricles blood accumulates in the veins, venous blood-pressure rises, and the counter pressure is overcome for a time at least; (2) thoracic aspiration, even when only normal, tends to relieve, at certain phases of respiration, the pressure exerted upon the auricles by the effusion, and aids the venous blood-pressure to overcome it; (3) when dyspnea supervenes, thoracic aspiration becomes more pronounced, because of the bringing into play of the supplementary muscles of respiration, and with the deeper respirations there is relief of the counter pressure upon the auricles. In some of his experiments, Franck has

obtained very perfect specimens of the *pulsus paradoxus*. The whole subject is very interesting, as showing the intimate relations between cardiac activity and respiration, and demonstrating that the phenomena of dyspnea, though occasioned by maloxydation of the blood, are not by any means merely the symptoms of a morbid process, but are also nature's compensatory media for helping out a laboring heart.

Professor Franck is giving at the College de France a series of demonstrations of the effects of poisons upon the heart and blood-vessels. His recent demonstrations that the action of the systolic poisons, digitalin and strophanthin, was similar to that produced by direct electric or mechanical stimulation of the myocardium, was a very convincing bit of physiologic therapeutics. There would seem to be no room left for doubt, after seeing the very similar effects produced, that digitalin was a very powerful, direct, cardiac-muscle stimulant. Quite recently, at the end of one of his demonstrations, the heart of an animal exposed for the demonstration stopped beating under the influence of a large dose of chloral. It is just the condition of affairs that occurs in the sudden cardiac accidents of chloral or chloroform, only here there was every assurance that the heart was not merely beating very slightly, but was absolutely stopped. For over two minutes no attempt was made to resuscitate it; then regularly repeated electrical stimulation was tried. After some minutes the heart took up its work for itself once more, and life went on. One cannot help but wonder if the application of electricity will not yet come to the relief of the dread cardiac accidents of anesthesia.

An American medical student cannot help but think that if series of demonstrations, such as one sees with Ranvier and Franck and Henneguy, at the College de France, were being given in a crowded medical center in the United States they would be better attended than they are here. Not more than a dozen people, sometimes even less, go to such demonstrations here, with 5000 medical students and an overcrowded medical profession in Paris. Curiosity, rather than scientific interest, seems to attract people. Just across the hall from Franck's lecture-room a series of lectures are being given on "Realism in Modern French Literature," and the lecture-room is so overcrowded that to get a seat one must go nearly an hour beforehand. The only one of the medical lecturers at the College de France whose lessons are well attended is Janney, who is lecturing on "Experimental Psychology." As his lectures include observations on hysteria and suggestibility, and are illustrated at certain times by patients at the Salpêtrière, they attract a good deal of attention from non-medical people.

Here in Paris, as everywhere else, the dread of overhanging examinations, more and more specialized and extended, keeps the medical student effectually in the narrow road of direct preparation for the answering of questions. Except for anatomy, the quiz system practically does not exist, so that a French medical student has more chances of drawing his medical inspiration from the lips of a master in the art, rather than from a quiz master. But it seems too bad that the broadening influence,

inevitably the result of contact with the makers of science, should not have chance to exert its sway, because of the haunting dread of examinations to come. They were once meant to show how much the student knows; they have become the reason why he seeks knowledge in certain directions, and the initiative faculty perishes ignobly.

TRANSACTIONS OF FOREIGN SOCIETIES.

Paris.

MUCOUS SEPTICEMIA—THE EFFECT OF DIGITALIN IN ASYSTOLE AND CHEYNE-STOKES' RESPIRATION—EIGHT GRAMS OF QUININ SULFATE WITHOUT DEATH—PALPATION OF THE LUNG THROUGH THE PLEURA.

AT the session of the Academy of Medicine, held February 16th, a communication from BABES was read on "Mucous Septicemia." This disease, as described by him, is characterized by a facial paralysis, anemia, a light fever, and progressive weakness, terminating in death. The disease is an infection of the blood by a mucin-producing microbe, which, either as the result of a special faculty, or because of favorable conditions, is able to bring about a mucoid transformation of the blood during life. Babes was unable to produce this transformation in the blood of animals experimented upon, although the germ is pathogenic for animals as well as for man.

MERKLEN read a paper before the Medical Society of the Hospitals, February 12th, on asystole and Cheyne-Stokes' respiration. He had the care of two patients suffering from arterio-sclerosis, with attacks of asystole, due to chronic myocarditis. In one of these patients Cheyne-Stokes' respiration came on suddenly twenty-four hours after the administration of one-fifteenth of a grain of crystallized digitalin. Death followed some hours later. The other patient recovered, though asystole and Cheyne-Stokes' respiration continued for six weeks, and appeared to be increased by the digitalin, but was considerably improved by hypodermic injections of morphin, which seemed to neutralize the effects of the digitalin, calming the anxiety and restlessness of the patient and regulating, apparently, the respiration.

GUINON related an instance in which a man, with suicidal intent, took eight grams, about 120 grains, of quinin sulfate. There was a profound collapse, with cold extremities, complete deafness, and blindness. The patient recovered.

COMBY reported that there were treated during 1896, at the Trousseau Hospital, 500 cases of scarlet fever, of ages from ten months to fourteen and one-half years. The mortality was 11.6 per cent., or, deducting fifteen cases which were transferred from the diphtheria ward, the mortality was 8.8 per cent.

At the session of the Surgical Society, held February 17th, LEJARS reported two cases of the *stripping up of the pleura*. One patient was fifty years of age, and suffered from pulmonary gangrene. Over this area, as determined by auscultation and percussion, about eight centimeters (three and a half inches) of the fourth, fifth, and sixth ribs were resected. The costal pleura was with-

out difficulty separated for a distance of a finger's length, and through this loosened pleura an area of induration could be made out in the lung. A small incision was made, the finger introduced, and by direct palpation it was ascertained that in the center of the indurated area there was a cavity filled with a bloody, putrid fluid. The lung was drawn up close to the wound and fastened in this position; pneumothorax was thus avoided. The gangrenous focus was evacuated. The patient failed rapidly, and at the autopsy presented bilateral sclerotic kidneys.

In the other case, one of gangrene of the lung, secondary to pneumonia, localized in the lower lobe of the right lung, in a patient aged thirty-three, the eighth, ninth, and tenth ribs were resected for about seven centimeters (two and three-quarter inches), and the costal pleura was separated as far up as was possible. Palpation did not reveal a distinct area of induration, and the pleura, which was adherent at this point, was incised. Intrapleural examination by the finger also failed to find a focus. The parenchyma of the lung was incised for a distance of five or six centimeters, but nothing was found. The patient died in a short time. At autopsy the gangrenous focus was found to be in the superior lobe.

ROUTIER operated upon a patient for localized empyema, resecting about ten centimeters of one rib. The pleura was stripped up, and through it a transpleural examination was made, but no information was gained. A small incision was made into the pleura and, as no focus of pus was found, the incision was prolonged and the surface of the lung inspected. Upon a line which seemed to mark the interlobular fissure, a needle was thrust in and drew pus. This was then opened and about a quart of pus evacuated. The patient recovered.

Routier described a kidney which he had removed on account of repeated unilateral hematuria. At first examination, the kidney appeared absolutely normal, but at the apex of one of the calices there was a small ulceration, which microscopical examination showed to be tubercular, and which had eroded a minute arterial branch.

Vienna.

RECOVERY FROM OSTROMALACIA—A NEW STETHOSCOPE MADE ON THE PRINCIPLE OF THE DRUM—RELATIVE VALUE OF IODOTHYRIN AND TABLETS MADE FROM THE THYROID GLAND.

LATZKO presented before the Vienna Medical Club, February 10th, a woman who, in the sixth month of pregnancy, exhibited the symptoms of osteomalacia. She was treated with phosphorus, without effect, and it was finally deemed necessary to produce miscarriage. After labor, the bones again became solid, but the pelvic diameters were decreased to such an extent that it will be impossible for her to be delivered of a full-term child except by Caesarian section.

At the session of the Imperio-Royal Society of Physicians, held February 19th, BASCH exhibited a stethoscope designed by himself and constructed on the principle of a Marry's drum. The diaphragm is a thin sheet of rubber, which is protected by a rubber cloth. The instrument is superior to the phonendoscope. The sounds are not only increased, while their character is in no wise altered, but

the analysis of the various acoustic phenomena is simplified. With this instrument the intestinal sounds and motions may be readily followed. It is also well adapted for the sounds of the fetal heart.

SCHIFF described experiments he had made to determine the quantitative value of iodothyronin and tablets made from the thyroid gland. It has been established that iodothyronin has qualitatively the same effect as the thyroid tablets, but, as the result of the tests made upon four patients with three separate packages of iodothyronin and one of thyroid tablets, Schiff concludes that there is no quantitative equivalence between iodothyronin and the gland substance. Either all of the active principles of the gland do not unite with iodin, or else the iodin preparations lose their power in the course of time.

It was also brought out that different packages of iodothyronin are different in therapeutic force, so that the substitution of this new drug for the thyroid tablets is not recommended.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE—SECTION ON ORTHOPEDIC SURGERY.

Stated Meeting held February 19, 1897.

A. B. JUDSON, M.D., Chairman.

SAMUEL KETCH, M.D., read the paper of the evening, entitled;

"REMARKS ON THE ORTHOPEDIC TREATMENT OF SPASTIC PARALYSIS IN CHILDREN."

[See page 385.]

DISCUSSION.

DR. FREDERICK PETERSON said that until he had heard the paper, he had known little about the orthopedic measures that are taken for the relief of these conditions. He asked if much can be done for the relief of spastic conditions in adults by means of tenotomies and apparatus. He took exception to the use by orthopedists of the term "irritability" in connection with these conditions, and did not think that the exaggerated reflexes which are present could be looked upon as "irritability." Exaggeration is due to the fact that inhibition from the cortex has been cut off—there is no irritability of the spinal cord. He thought this condition might be obviated by the use of the faradic current, which he considered preferable to the galvanic. A great deal of benefit will result from pedagogy, or education of the muscles by efforts of the will. Results of considerable benefit have been obtained from active instead of passive movements; as, for example, using the typewriter or playing the piano in the case of a paralyzed hand.

DR. WILLIAM LESZYNISKY said that in his experience no benefit whatever has been obtained from the use of electricity in these cases, but that much improvement resulted from efforts of the will and persistent manipulation of the limb. For instance, in a child with paralyzed limbs, the efforts made to walk are sometimes sufficient to restore the function of the muscles. In some of these

cases of cerebral palsy, of course, but little can be done. It seemed to him that most of these cases are seen among the poorer classes. The better class do not allow their children to go so long without treatment, and the disease is not allowed to produce such marked deformities.

DR. REGINALD SAYRE said that to prevent these deformities treatment would have to be directed to removal of the lesion in the cord, which was a very difficult thing to do. He had seen many of these cases in the higher walks of life, and had found them just as intractable as those occurring among the poor.

He confirmed all the points which Dr. Ketch had brought up in the paper in regard to the results obtained from myotomies and tenotomies and the use of apparatus, but did not agree with him as to the employment of faradism.

DR. V. P. GIBNEY asked Dr. Leszynsky how he thought the deformities of spastic paralysis could be prevented.

DR. LESZYNISKY replied that patients of the well-to-do class do not get into such a bad condition as do those among the poor, because they seek treatment at an earlier stage. He thought that if a deformity had existed for years, there would be changes in the bone or joint, and believed he was right in considering such deformities difficult to rectify.

DR. H. L. TAYLOR asked the author to make more clear the indications for treatment in the different stages of these paralyses. He thought this class of cases owe a debt of gratitude to Dr. Bradford of Boston and to Dr. Gibney of this city, because of the benefit which has been derived from the combined use of braces and tenotomies as practised by them. In most of these cases there is a condition of contracture which is not easy to control by braces; *i.e.*, the deformity will return when the brace is removed. Tenotomy not only makes it possible to retain the foot in position, but has a decided effect upon the spasm. The tendon is cut for the specific purpose of relieving the spasm, and this point has been made clear by the surgeons mentioned. He thought the author had not sufficiently emphasized this fact in his paper. Another point is the very marked mental improvement which follows this mode of treatment. One of his cases was a little girl of six, who was very hard to manage, and who had what her mother called "tantrums." She now goes to a kindergarten, and has had no more "tantrums" since the tenotomy. The speaker said he would treat adults suffering from spastic paralysis in the same manner as he would treat children.

DR. H. W. BERG thought that almost all of these cases of spastic paralysis require a diagnosis as to their causation before any mode of treatment can be decided upon. Many of these cases accompany congenital idiocy, and in these pedagogy of the muscles will most aptly apply. The sense of sight should be developed by bright colors, that of hearing by the use of bells; at the same time the muscles should be developed to produce motor functions by making the child go through certain motions a given number of times, and repeat this until he learns how to do it. Good results can be obtained in this

way after years of patient toil. Another class of cases results from meningeal hemorrhage during birth or at an early period of life, which destroys the motor area in the cortex, and results in degeneration of the cord. In such cases, education of the muscles is love's labor lost. These are the cases that do best under tenotomy. After a large experience in treating these cases with electricity, he was rather in favor of galvanism.

DR. N. M. SHAFFER said that a large number of these cases came under his observation both in hospital and private practice, and he had found that after a time the contraction becomes a contracture which is absolutely rigid, and yet, as time goes on, a radical change for the better will take place without any operative measures whatever. There is also improvement in the mental condition. He believed that this was due to the changes which take place in the body every seven years, and for this reason he often waited two or three years before operating. He ordered passive exercise to be kept up half an hour or an hour each day, and, so long as approximately normal movements can be gotten, did not think tenotomy necessary. Results obtained in this way are better than when tenotomy is done in the spastic stage. He had seen an elongated tendo-Achilles follow tenotomy done in the spastic stage, and this caused disability as great or greater than that which existed before the operation. It is also important that an apparatus be worn after tenotomy, in order to retain the limb in proper position.

DR. PETERSON remarked, in regard to improvement in the normal condition which Dr. Shaffer said often occurred when a radical change took place in these cases, that he thought this was merely a coincidence. In referring to the connection between these palsies and idiocy, Dr. Berg had spoken as if the paralysis was due to idiocy. The different degrees of idiocy and palsy, as well as epilepsy, are symptoms of cerebral injury received during parturition or within the first two or three years of life. Idiocy is a symptom which is found in fully fifty per cent. of all cases of spastic paralysis in children. Education of the muscles applies to all cases whether idiocy is present or not, and improvement in the mental condition often results from certain forms of pedagogy of the muscles. In regard to the use of electricity, he said that he did not see any advantage to be obtained from galvanism, and it often irritates the delicate skin of a child. The little patients soon become accustomed to faradism and rather like it.

DR. SHAFFER said that he scarcely thought the changes he had referred to are tissue changes. In one of his cases there was a change in the direction of the gastrocnemius, and he thought this might be due to the pathological condition instead of a change in the muscle tissue.

DR. BERG asked Dr. Peterson if he understood him to say that he considered every one of these cases as being due to meningeal hemorrhage. In some of these cases, was there not simply a lack of development of the motor centers or motor tracts? If so, he thought the treatment of the latter cases should differ materially from that employed in those cases where the paralysis is due to cerebral hemorrhage.

DR. PETERSON said that spastic paralysis, in a large majority of cases is due to meningeal hemorrhage, and that there are few cases where deficient development of the brain is found *post-mortem*. Atrophy, sclerosis, and cysts, are found in idiots.

DR. KETCH, in closing, said that his remarks were purely clinical, and that he had purposely left out anything that referred to the etiology of the condition. Dr. Peterson had objected to his use of the word "irritability." As most of the cases exhibit a general condition of irritability, described as "tantrums" by Dr. Taylor, he thought the term well applied. He had been asked to make clear the indication for tenotomy. A great degree of spasm would be to him an indication for the non-performance of tenotomy at that time. He believed with Dr. Shaffer that we should wait until the stage of contracture before operating. Each case should be studied individually, and the treatment governed by the amount of spasm and irritability. He could give no satisfactory reason for the mental improvement which takes place in some of these cases, but thought it might be the natural result of time.

SPECIMEN SHOWING "SECONDARY POTT'S DISEASE WITH COMPRESSION OF THE CAUDA EQUINA, FOLLOWING EMPYEMA."

DR. GEORGE T. ELLIOTT presented a specimen from a man, twenty-eight years of age, who had tubercular involvement of both lungs and purulent exudation into the right pleural cavity. Slight lumbar kyphosis appeared later, with partial motor paralysis of the lower extremities and pain and knee-jerks which varied with the position of the patient. While the patient lay on the right side, the pain ceased and the knee-jerks appeared, the latter disappearing when he lay on the left side or back. At the autopsy the right pleural cavity was found filled with pus. An extradural sinus extended from the tenth dorsal vertebra, where it communicated with the right pleural cavity, to the second lumbar vertebra. The tenth vertebra was carious and the fourth and fifth lumbar softened, with a small abscess cavity separated from the cauda equina by an area of pachymeningitis externa caseosa. The ventral surface of the dura was intact. The extradural sinus rested upon this caseous mass and did not mix its contents with those of the extrapachymeningitic abscess cavity. There was no microscopic degeneration of the cord. The points of interest are as follows: (1) Entrance of pus from pleural cavity into vertebral canal, the usual order reversed. (2) Dual secondary involvement of vertebral column. (3) Compression symptoms varying as the patient changed his position, and with a varying quantity of pus in the epidural canal which communicated with the pleural cavity containing pus.

The patient had had lung trouble before any symptoms of vertebral caries appeared. The speaker could not say whether or not any attempt had been made during life to evacuate the pus in the pleural cavity.

REVIEWS.

THE PRACTICE OF MEDICINE. By HORATIO C. WOOD, A.M., M.D., LL.D. (Yale), Professor of Ther-

apeutics and Clinical Professor of Nervous Diseases in the University of Pennsylvania, etc., and REGINALD H. FITZ, A.M., M.D., Hersey Professor of the Theory and Practice of Physic in Harvard University, etc. Philadelphia: J. B. Lippincott Co., 1897.

THE authors state in their preface that this work is the "outcome of an attempt to view the practice of medicine simultaneously from the pathologic and therapeutic points of view," and there are few who, having read the book, will not admit that the attempt has been successful. Wood's eminence, his preëminence, in fact, as a therapeutic teacher, enables him to speak authoritatively on the treatment of disease, and all the therapeutics of the book have been written by him. Fitz's reputation as a pathologist renders the reading of the morbid anatomy of each chapter clear, and it is evident that, concerning most of the conditions, he has seen many examples.

The book begins with a full chapter on the diseases of the blood and of the ductless glands. The thyroid extract is heartily commended in cases of goiter and myxedema, but no reference is made to the recent discovery of the presence of iodin in the thyroid gland, which probably accounts for the benefits derived from this variety of animal extract in the proper cases. The locomotor and constitutional diseases, and the infectious diseases, are next discussed. The section on tuberculosis is especially well arranged and splendidly treated. The authors do not specifically recommend the injection of tuberculin, though they state that it is viewed with favor by some writers. The antitoxin treatment of diphtheria is urged "whenever the clinical features of the case warrant the diagnosis of diphtheria." The writers properly point out the difficulties of securing perfect results when the infection is a mixed one. No mention is made of the use of the antistreptococcus serum in cases of pyemia and septicemia.

A chapter on "Animal Parasites," very complete and instructive, is followed by one on "Acute and Chronic Poisoning," which is a valuable element in the book. The "Diseases of the Nervous System" occupy the next 240 pages. In the treatment of this subject Wood has left nothing to be desired, though it is a little surprising that he has not referred to Quinche's lumbar puncture as a diagnostic measure.

The succeeding sections are devoted to the diseases of the circulatory apparatus, of the digestive apparatus, and of the peritoneum. The Charcot-Leyden crystals of asthma are spoken of as Charcot crystals. Under the diseases of the lungs tuberculosis is not described, being fully treated in the chapter on infectious diseases. Although the technic of staining and preparing microorganisms belongs, perhaps, more properly to works on diagnosis, a description of them would not be out of place in a book on practice so voluminous as this.

One turns naturally with some eagerness to the discussion of appendicitis in this work, since Fitz was the originator of the term and the first one to describe fully the morbid anatomy of the process. His original observations still stand as classical descriptions of the various forms of the process. The authors recommend surgical

treatment of appendicitis when the symptoms point to a perforation; when sixty hours of treatment shows no abatement of the symptoms; and "when a sudden increase in the local and general symptoms points toward the occurrence of perforation or the formation of pus." Operation in the interval of attacks is recommended, Wood preferring to have the appendix removed directly after the recovery of a second attack. Fitz advises removal in cases in which recurrences are frequent or the tendency to relapse is such as to produce a state of semi-invalidism.

The last section of the book is devoted to the diseases of the kidneys, with a full consideration of abnormalities of the urine. A formulary of twenty-eight prescriptions and a number of temperature charts are appended to the work. The index is quite complete.

On the whole, this latest addition may be cordially recommended as a text-book of medicine, it being a recent, full, and authentic exposition of the subject. The standing of its authors can be but enhanced by this publication.

The only objection to be made to the work of the publisher lies in the inferior quality of the paper.

THE EYE AND ITS CARE. By FRANK ALLPORT, M.D., Professor of Clinical Ophthalmology and Otology in the Minnesota State University, etc. Philadelphia: J. B. Lippincott Co. 1896.

This little volume of 172 pages is devoted to a consideration of the anatomy, physiology, and hygiene of the eye, presented in an elementary, popular style. No attempt at originality is claimed. The book is well printed, fully illustrated and attractively bound. The non-medical student who thirsts for a little knowledge of the eye will find this work of value.

THE PRINCIPLES OF THEORETICAL CHEMISTRY, WITH SPECIAL REFERENCE TO THE CONSTITUTION OF CHEMICAL COMPOUNDS. By IRA REMSEN, Professor of Chemistry in the Johns Hopkins University. Fifth edition. Philadelphia and New York: Lea Brothers & Co. Pp. X to 326. 1897.

As the author states in the preface, this new edition has been prepared on the lines of the preceding ones, his object being "to help students to get clear ideas in regard to the foundation of chemistry." This little work states in brief all that is known of the modern theories of chemistry, with a sketch of their development. It especially points out the value of the work of Lavoisier in putting us in a position to investigate the laws of chemical change, making chemistry more of an exact science than it had previously been.

The molecular theory is then fully discussed, and the value of the periodic law, as a means of classification of the elements, is pointed out. The author devotes much space to the constitution of chemical compounds, and the physical methods of their determination; a passing glance being had of stereo-chemistry, and the study of chemical affinity.

On the whole, this little book is worthy of attention by the student of theoretical chemistry and of chemical problems.

ANNOUNCEMENTS.

THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

THE American Climatological Association will hold its fourteenth annual meeting in Washington, D. C., May 4, 5, and 6, 1897.

The sessions will be held daily from 10 A.M. until 1 P.M. in the Columbian University Building.

The general sessions of the Congress will be from 2 until 5 P.M.

The annual dinner of the Association will be held on the evening of May 4th, at the Hotel Normandie.

President, Dr. E. Fletcher Ingals, Chicago.

Secretary and Treasurer, Dr. Guy Hinsdale, Philadelphia.

PRELIMINARY PROGRAM:

"President's address," E. Fletcher Ingals, M.D.

PAPERS.

"Choice of a Summer Residence." F. I. Knight, M.D.

"Mountain Fever." Thomas Darlington, Jr., M.D.

"Renal Disease as Affected by Climate." I. N. Danforth, M.D.

"Climate or Environment as a Factor in the Repair of Neurasthenia and Melancholia." J. Madison Taylor, M.D.

"Nervous Diseases Affected by Climate." Sanger Brown, M.D.

"The Comparative Merits of Resorts in Colorado, New Mexico, and Arizona." S. E. Solly, M.D.

Paper by R. G. Curtin, M.D.

"A Brief Consideration of Some Points in the Management of Consumption." Submitted for discussion. R. H. Babcock, M.D.

"Cases of Pulmonary Tuberculosis with Recovery." John H. Musser, M.D.

"The Clinical Value of the Culture Products of the Bacillus Tuberculosis in Tubercular Affections." Karl von Ruck, M.D.

"Terebinthinates as Remedial Agents." J. B. Walker, M.D.

"Aero- and Hydrotherapeutics in the Prevention and Treatment of Pulmonary Tuberculosis." S. A. Knopf, M.D.

"Infrequency of Pneumonia on the Atlantic coast of Florida." Frank Fremont Smith, M.D.

"Remarks on the Treatment of Tuberculosis by the Antitubercle Serum." Guy Hinsdale, M.D.

"Some Personal Observations upon the Effects of Changes of Climate upon the Health of Men and Animals." R. C. Newton, M.D.

"Dangers of Tubercular Infection and Their Partial Arrest by Climatic Influences." C. F. Gardner, M.D.

"Does the Institution Treatment Promise the More Certain Cure in Pulmonary Tuberculosis?" C. P. Ambler, M.D.

"The Treatment of Gout by Natural Mineral Waters." C. C. Ransom, M.D.

"Report on Mineral Springs." A. C. Peale, M.D.

"The Treatment of Haemoptysis with the Salicylates." Thomas J. Mays, M.D.

Papers by Thomas D. Coleman, M.D.; C. F. McGahan, M.D.; H. L. Elsner, M.D., and others.

Members should purchase a ticket to Washington with a certificate of purchase. Presentation of this, countersigned by the agent at the Congress, will entitle members to return at one-third the regular fare.

The headquarters of the Association will be at the Hotel Normandie, which has made special rates of from \$3 to \$3.50 per day.

Members intending to be present at the dinner will advise the Secretary as early as convenient, as it will take place on the evening of the first day.

Abstracts of papers should be forwarded to the Secretary in advance, and all manuscripts given to him as soon as read.

NATIONAL CONFEDERATION OF STATE MEDICAL EXAMINING AND LICENSING BOARDS.

President, Wm. W. Potter, M.D., N. Y. Secretary-Treasurer, A. Walter Suiter, M.D., Herkimer, N. Y.

The seventh annual meeting of this Confederation will be held in the small banquet hall of the Hotel Walton, at Philadelphia, Monday, May 31, 1897, at 10 o'clock, A.M. The following program has been arranged:

1. Address of welcome by A. H. Hulshizer, M.D., of Pennsylvania State Board of Medical Examiners.

2. Response by Vice-President Reed.

3. Report of the Committee on Minimum Standard of Requirements.

4. Discussion and action thereon.

5. Report of the Secretary and Treasurer.

6. Annual address of the President.

7. "Some Practical Experience with, and Results of, the Medical Law of Pennsylvania." Wm. S. Foster, M.D., Pittsburg.

8. "The Need for Exact Information as to the Equipment, Methods, and Requirements of our Medical Schools." J. H. McCormack, M.D., Bowling Green, Ky.

9. Address by Professor J. W. Holland, M.D., Dean Jefferson Medical College, Philadelphia.

The object of the Confederation is to consider questions pertaining to State control in medicine, and to compare methods in vogue in the several States; the collection and dissemination of information relating to medical education, and to consider propositions that have for their purpose advancement of the standards in the United States. A cordial invitation is extended to all members and ex-members of State medical examining boards, and to physicians, sanitarians, and educators who are friendly to the objects named, to attend the meeting and participate in its proceedings.

MEETINGS OF NATIONAL MEDICAL SOCIETIES, 1897.

NAME OF SOCIETY.	PLACE.	TIME.	SECRETARY.	RESIDENCE.
American Academy of Medicine.....	Philadelphia, Pa.	May 29-31.....	Dr. C. McIntyre.....	Easton, Pa.
American Academy of Railway Surgeons.....	Chicago, Ill.	Sept.....	Dr. D. C. Bryant.....	Omaha, Neb.
American Assoc. Genito-Urinary Surgery.....	Washington, D. C.	May 4-6.....	Dr. W. K. Otis.....	New York City.
American Association Obstetrics and Gyn.....	Niagara Falls, N. Y.	Aug. 17-20.....	Dr. W. W. Potter.....	Buffalo, N. Y.
American Climatological Association.....	Washington, D. C.	May 4-6.....	Dr. G. Hinsdale.....	Philadelphia, Pa.
American Dermatological Association.....	Washington, D. C.	May 4-6.....	Dr. J. T. Bowen.....	Boston, Mass.
American Electro-Therapeutical Association.....	Harrisburg, Pa.	Sept. 21-23.....	Dr. M. Einhorn.....	New York City.
American Gynecological Society.....	Washington, D. C.	May 4-6.....	Dr. J. Riddell Goffe.....	New York City.
American Laryngological Association.....	Washington, D. C.	May 3-7.....	Dr. H. L. Swain.....	New Haven, Conn.
American Laryn., Otolog., and Rhin. Society.....	Washington, D. C.	April 30-May 1.....	Dr. R. C. Myles.....	New York City.
American Medical Association.....	Philadelphia, Pa.	June 1-4.....	Dr. W. B. Atkinson.....	Philadelphia, Pa.
American Neurological Association.....	Washington, D. C.	May 4-6.....	Dr. G. M. Hammond.....	New York City.
American Ophthalmic Society.....	Washington, D. C.	May 4-6.....	Dr. S. B. St. John.....	Hartford, Conn.
American Orthopedic Association.....	Washington, D. C.	May 18-21.....	Dr. J. Ridlon.....	Chicago, Ill.
American Otological Society.....	Washington, D. C.	May 4.....	Dr. J. J. B. Vermyne.....	New Bedford, Mass.
American Pediatric Society.....	Washington, D. C.	May 4-6.....	Dr. F. A. Packard.....	Philadelphia, Pa.
American Public Health Association.....	Philadelphia, Pa.	Sept.....	Dr. I. A. Watson.....	Concord, N. H.
Army and Navy Medical Association.....	East St. Louis, Ill.	May 18.....	Dr. E. P. Bartlett.....	Springfield, Ill.
Association of American Physicians.....	Washington, D. C.	May 4-6.....	Dr. H. Hun.....	Albany, N. Y.
Association of Military Surgeons of U. S.	Columbus, O.	May 25-27.....	Dr. H. Burdin.....	Philadelphia, Pa.
Canadian Medical Association.....	Montreal.....	Aug.....	Dr. F. N. G. Starr.....	Toronto.
Mississippi Valley Medical Association.....	St. Paul, Minn.	Oct. 19-22.....	Dr. H. W. Loeb.....	St. Louis, Mo.
Medical Society of the Missouri Valley.....	Lincoln, Neb.	March 18.....	Dr. D. Macrae, Jr.....	Council Bluffs, Ia.
National Association of Railway Surgeons.....	Chicago, Ill.	May 4-6.....	Dr. C. D. Wescott.....	Chicago, Ill.
New England Psychological Society.....	Waverly, Mass.	March.....	Dr. E. V. Scribner.....	Worcester, Mass.
Southern Surgical and Gynec. Association.....	Nashville, Tenn.	Nov. 10.....	Dr. W. E. B. Davis.....	Birmingham, Ala.
Tri-State Medical Society.....	St. Louis, Mo.	April 6-8.....	Dr. G. W. Cale.....	St. Louis, Mo.
Western Ophthal., Laryn., and Rhin. Assoc.	St. Louis, Mo.	April 8-9.....	Dr. H. Foster.....	Kansas City, Mo.
Western Surgical and Gynec. Association.....	Denver, Col.	Dec. 28-29.....	Dr. H. E. Pearce.....	Kansas City, Mo.

MEETINGS OF STATE MEDICAL SOCIETIES, 1897.

STATE.	PLACE.	TIME.	SECRETARY.	RESIDENCE.
Alabama.....	Selma.....	April 20-23.....	Dr. J. R. Jordan.....	Montgomery.
Arkansas.....	Little Rock.....	May 12.....	Dr. F. Visonhaler.....	Little Rock.
California.....	San Francisco.....	April 20-22.....	Dr. W. W. Kerr.....	San Francisco.
Colorado.....	Denver.....	June 15.....	Dr. H. B. Whitney.....	Denver.
Connecticut.....	Hartford.....	May 26, 27.....	Dr. N. E. Wordin.....	Bridgeport.
Delaware.....	Rehoboth.....	June 8.....	Dr. P. W. Tomlinson.....	Wilmington.
District of Columbia.....	Washington.....	April 6.....	Dr. J. R. Wellington.....	Washington.
Florida.....	Palatka.....	April 21.....	Dr. J. D. Fernandez.....	Jacksonville.
Georgia.....	Macon.....	April 21.....	Dr. R. H. Taylor.....	Griffin.
Idaho.....	Boise.....	Sept. 9, 10.....	Dr. W. D. Springer.....	Boise.
Illinois.....	East St. Louis.....	May 18.....	Dr. J. B. Hamilton.....	Chicago.
Indiana.....	Terre Haute.....	May.....	Dr. F. C. Heath.....	Indianapolis.
Indian Territory.....	South McAlester.....	June 1, 2.....	Dr. G. J. Rucker.....	Claremore.
Iowa.....	Marshalltown.....	May 19-21.....	Dr. J. W. Cokenower.....	Des Moines.
Kentucky.....	Owensboro.....	June.....	Dr. S. Bailey.....	Stanford.
Louisiana.....	New Orleans.....	May 4.....	Dr. P. B. McCutchan.....	New Orleans.
Maine.....	Portland.....	June 2-4.....	Dr. C. D. Smith.....	Portland.
Maryland.....	Baltimore.....	April 20-23.....	Dr. W. G. Townsend.....	Baltimore.
Massachusetts.....	Boston.....	June 8, 9.....	Dr. F. W. Goss.....	Roxbury.
Michigan.....	Grand Rapids.....	May.....	Dr. C. H. Johnston.....	Grand Rapids.
Minnesota.....	Mankato.....	June 16-18.....	Dr. I. Donnelly.....	St. Paul.
Mississippi.....	Jackson.....	April 21.....	Dr. J. R. Tackett.....	Meridian.
Missouri.....	St. Louis.....	May.....	Dr. J. N. Jackson.....	Kansas City.
Montana.....	Helena.....	April 8.....	Dr. W. C. Riddell.....	Helena.
Nebraska.....	Lincoln.....	May 18-20.....	Dr. G. H. Simmons.....	Lincoln.
New Hampshire.....	Concord.....	May 24, 25.....	Dr. G. P. Conn.....	Concord.
New Jersey.....	Cape May.....	June 22.....	Dr. W. Pierson.....	Orange.
New York (Assoc.).....	New York City.....	Oct. 12-14.....	Dr. E. D. Ferguson.....	Troy.
New Mexico.....	Albuquerque.....	May 12.....	Dr. H. J. Abernethy.....	Socorro.
North Carolina.....	Elizabeth.....	June 8.....	Dr. R. D. Jewett.....	Wilmington.
Ohio.....	Cleveland.....	May 19-21.....	Dr. T. Hubbard.....	Toledo.
Ontario.....	Toronto.....	June 2, 3.....	Dr. J. N. E. Brown.....	Toronto.
Oregon.....	Portland.....	June 8, 9.....	Dr. W. F. Amos.....	Portland.
Pennsylvania.....	Pittsburg.....	May 18, 19, 20.....	Dr. W. B. Atkinson.....	Philadelphia.
Rhode Island.....	Providence.....	June 3.....	Dr. F. L. Day.....	Providence.
South Carolina.....	Union.....	April 22.....	Dr. W. P. Porcher.....	Charleston.
South Dakota.....	Mitchell.....	June 9.....	Dr. W. J. Maytum.....	Alexandria.
Tennessee.....	Nashville.....	May 21.....	Dr. C. R. Atchinson.....	Nashville.
Texas.....	Paris.....	April 27.....	Dr. H. A. West.....	Galveston.
Utah.....	Salt Lake.....	Oct. 3, 6.....	Dr. J. N. Harrison.....	Salt Lake.
Vermont.....	St. Albans.....	Oct. 14, 15.....	Dr. D. C. Hawley.....	Burlington.
Virginia.....	Hot Springs.....	Aug. 31, Sept. 1, 2.....	Dr. J. F. Wien.....	Richmond.
Washington.....	Spokane.....	May 11, 12.....	Dr. J. M. Semple.....	Medical Lake.
West Virginia.....	Charleston.....	June.....	Dr. G. A. Aschman.....	Wheeling.
Wisconsin.....	Racine.....	May 5.....	Dr. C. S. Sheldon.....	Madison.